
MUV-LUV
ALTERNATIVE
CODEX

MUV-LUV ALTERNATIVE CODEX

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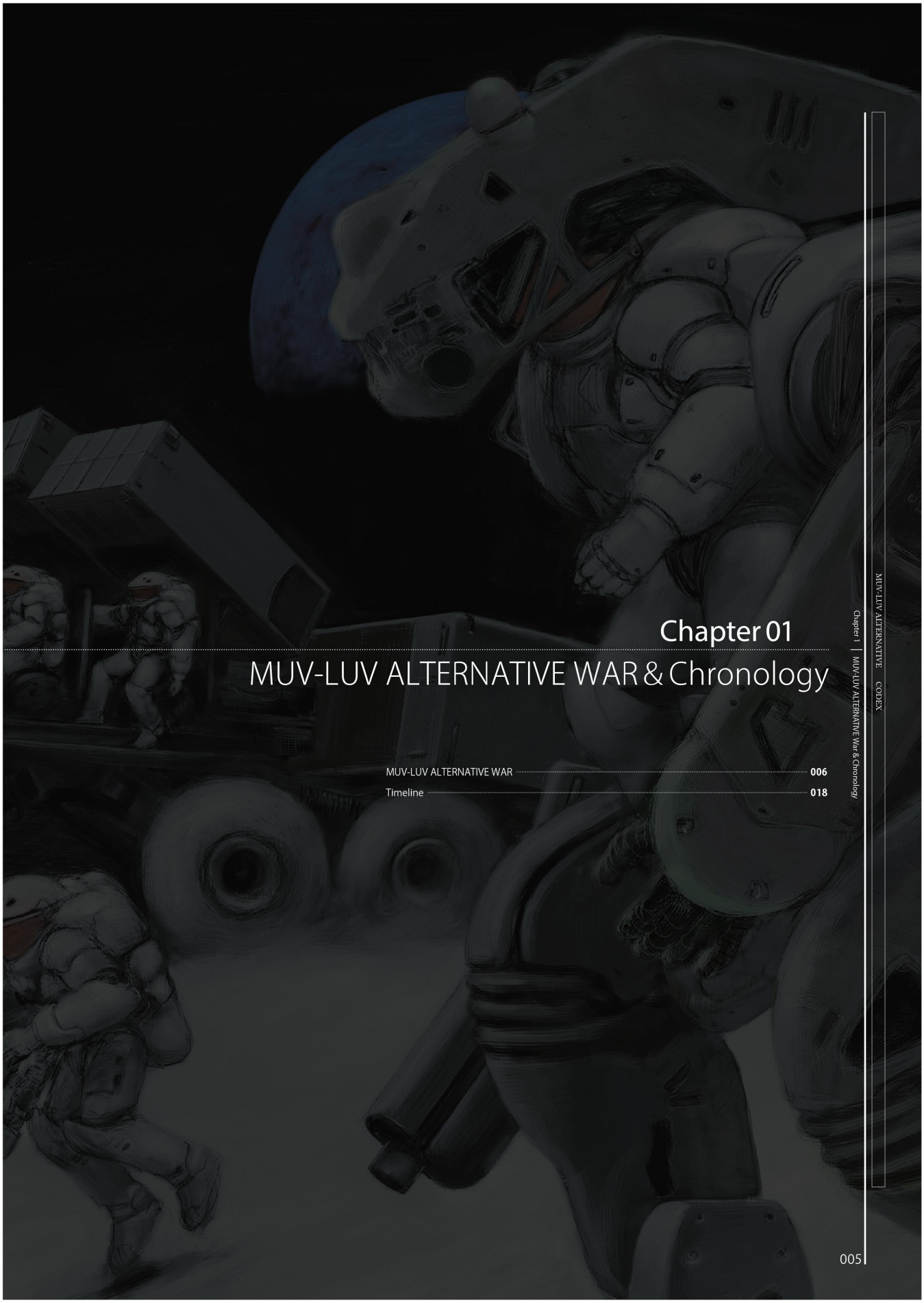
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Illustrated by 加藤直之
Naoyuki Katoh



Chapter 01
MUV-LUV ALTERNATIVE WAR & Chronology

MUV-LUV ALTERNATIVE WAR 006
Timeline 018



MUV-LUV ALTERNATIVE WAR

In 1958, 43 years before the events of “Muv-Luv Alternative”, humanity was brimming with excitement over the first signs of alien life, sent from a Mars probe. That alien life would eventually invade Earth and wipe out half of humanity. Humanity had quickly recovered from the ravages of the Second World War, and had grand hopes for future space developments during the Cold War, but this was a new reality no one could have imagined——



1967 First Lunar War

"-Plateau 1, we are under attack from large life forms. Repeat, under attack from life forms! Sending over video feed. Hurry, turn the satellite this—" (January 27th, 1967. The first communications received by mankind regarding an encounter with BETA, sent by V. Grissom, head of the Sacrobosco 2nd Search Party.)

In 1958, the Mars probe 'Viking 1' sent footage of what were believed to be highly intelligent life forms on the surface of Mars, before ceasing all communications. A satellite probe orbiting Mars also observed an object thought to be a megastructure. However, all subsequent landings of unmanned probes on Mars had failed, and over the following nine years, research into the Martian life forms gradually ground to a halt.

Then, on January 25th, 1967, humanity realized its long awaited first contact with them in the most unimaginable way. The name of the individual who had the prestige of making first contact will never be known. Several geological surveillance teams had been deployed to the Sacrobosco Crater from the international permanent lunar base Plateau-1 to investigate a large scale moonquake that had occurred a few days prior. All their lives were lost suddenly and almost simultaneously, and the first search party sent suffered the same fate. They would be the first to establish contact with the life forms, and the first to fall victim to them.

The second search party was more carefully deployed. With their report, which had clear footage and sound, mankind would come to the learn of these enemies, later calling them 'BETA' - **B**eings of **E**xtra-**T**errestrial origin and **A**dversaries of the human race.

It took just over a week to scientifically confirm that the life forms found on the Moon (BETA) and the Martian life forms were the same. This task was undertaken using only the satellite images from Mars, and footage from the Moon's surface. To take only a week to come to such a conclusion is abnormally fast in the field of biology. However in the wider scientific community, which was falling into disarray, there was much speculation regarding their identity. Even ridiculous theories, fueled by misinformation, panic, and fear were seriously considered. One such theory was that the life forms were a biological, long-ranged weapon of Soviet origin. This theory was strongly supported not only by Moon bases, such as Plateau-1, being aligned with the West, but by one of the BETA's signature features; their caricatured, biology-defying appearance.

Society fell into chaos in response to the unbelievable situation; a hostile encounter with an alien life form that was at the very least advanced enough to conduct interplanetary flight. In the days following their discovery, observation bases across the Moon's surface were attacked one after the other. As a result, the peaceful contact plan that had been established after Viking 1's discovery of the life forms was completely abandoned.

The UN Security Council was summoned in response to the problem and declared Plateau-1 as mankind's forward base, before instructing all personnel on the Moon's surface to withdraw to it. At the same time, it organized the first UN Force, based on the United Nations 43rd Charter, and decided to conduct a determined defense of the Moon. Mankind had decided to engage in war with the BETA.

However, the space development treaty in place at the time forbade militarization on the Moon. Even Plateau-1, the largest lunar base, only had research vehicles, MMUs (Manned Maneuvering Units) purposed for construction use, and small firearms for security and peacekeeping. While vehicles such as HSSTs (Hyper Surface Shuttle Transporters), which are capable of geocentric orbital navigation, had been deployed during the Cold War, the aforementioned treaty prevented weapons such as these from having the ability to reach the Moon. Additionally, military equipment that was being considered for lunar use, was only at experimental stages. Although the military logistics were being handled exclusively by large mass drivers orbiting Earth, these were only designed for use with standard cargo. it was not possible to use these to transport weapons such as large armored vehicles.

Against the screams from the Moon that filled the communication lines, the UN decided for the time being, to set up a space command with the US and Soviet aerospace forces, which had already expanded their capabilities to low-earth orbit combat. Soldiers with experience or training in low-gravity environments were quickly gathered up as a lunar force. They were deployed to the lunar surface with man-portable heavy firearms, hastily modified for use in vacuum and low-G environments. These heavy firearms could also be mounted onto existing MMUs and lunar vehicles.

This is more commonly known as the start of the Great BETA War.

1970 Development of Armored Mechanized Infantry

"The Moon is Hell."

(General J. Campbell, Commander of the UN Space Force.)

Humanity had commenced fighting with the deployment of hastily modified weapons. However, the Moon was too far too distant and harsh, while the BETA were far too numerous and tough.

Having to bring all of its supplies from Earth, mankind was heavily outmatched in supply capabilities against the BETA, which were thought to have commenced large scale breeding on the lunar surface.

There was some progress in the development of exploiting lunar resources, but the Moon lacked heavy metals, and without these, it was difficult to replenish easily depleted supplies such as ammunition.

The supply problem eventually put so much pressure onto the defense forces, that even medieval mortars using cement rounds made from lunar sand were being considered.

Furthermore, the environment of the lunar surface itself posed a serious threat. For humans, the slightest wound could prove fatal, and even minor damage to an armament could render it useless.

On the other hand, BETA were impervious to the Moon's conditions and could engage in close combat by resisting small arms fire to some degree.

Other threats included the vacuum of the Moon, the 300°C swings in temperature between day and night occurring every 15 days, cosmic rays, and magnetic lunar sand (regolith), which could enter the moving parts of machines. These factors, as well as a lack of testing in appropriate conditions, contributed to a high rate of malfunctioning in weapons, creating additional burden for the soldiers.

In order to mitigate the rapid expansion of BETA controlled territory, the UN military high command ignored the recommendations of certain scientists and ordered long-range bombardment using mass drivers orbiting Earth.

Even though this bombardment temporarily slowed the invasion, it stirred up large amounts of the magnetic regolith and caused long lasting moonquakes.

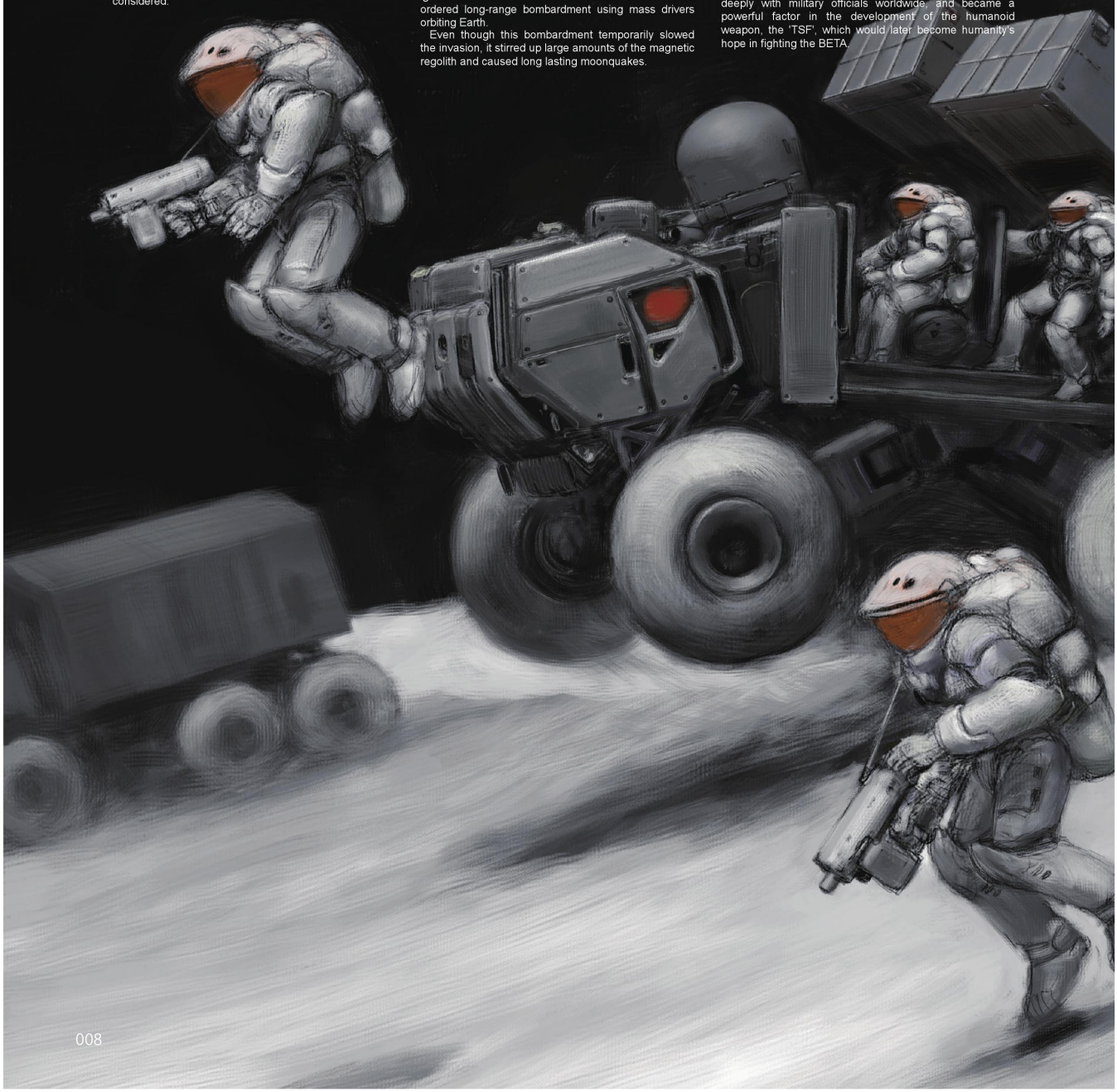
This resulted in an emergency situation where the defense forces' sensor grid fell silent for several days over a wide area.

During this time, three more observation bases were wiped out, literally 'without raising a voice'. Because this had significantly accelerated the expansion of BETA controlled areas, orbital bombardment tactics were not considered again.

In 1970, a mechanized infantry armor unit equipped with the Hardiman - a FP (Feedback Protector) weapon, which was the first achievement of mankind's anti-BETA weapon developments - was deployed to the Moon with some success.

They were capable of using heavy weapons which infantry could not, with the ability to conduct precise three-dimensional movements unavailable to armored vehicles, in order to increase accuracy and prevent wasting the precious resource of bullets. They were able to extend the longevity of the lunar front line, which was on the brink of collapse, by almost three years.

Ultimately, they were not able to overturn humanity's disadvantage, but in the end, they led to the development of ES (Exo-Skeleton) weapons, and would eventually be deployed as mechanized infantry armor in armies across the globe. Finally, the success of the FP weapons resonated deeply with military officials worldwide, and became a powerful factor in the development of the humanoid weapon, the 'TSF', which would later become humanity's hope in fighting the BETA.



1973 BETA Invasion of Earth

A terrible price was paid to maintain the lunar front line. However, that would all come to naught on the 19th of April, when a BETA landing unit from the Moon landed in the Xinjiang-Uygur Autonomous Region of the People's Republic of China.

Finally, the BETA's invasion of Earth had begun, and mankind was forced to abandon the Moon.

Here, mankind came to see the overwhelming numbers of BETA, surpassing those of the lunar front line. However, on Earth, mankind could deploy weapons and tactics that had been cultivated over time, and there was confidence that the BETA could be eliminated.

As a matter of fact, the Chinese government had planned to monopolize research on the BETA, and denied assistance from the UN Force, claiming that the BETA landing was a domestic problem. Although they received international criticism that they were stealing property that was common to all of humanity, it was undeniable that the global community was ready to accept China's terms.

Initially, the Chinese Military's air operations were overwhelmingly effective, as the BETA had no aircraft or anti-air weaponry of their own.

Meanwhile, secret negotiations were being conducted between the Eastern and Western blocs about the progression of BETA research, which would determine the country leading the liberation of the Moon, as well as interplanetary navigation technology.

Humanity still had time and space to mull over such things.



The Demise of Air Power

"If it's on Earth, we can win." Everyone believed this, and no one doubted it.

However, two weeks after the fighting in Xinjiang began, the appearance of a new strain of BETA made humanity realize that this was nothing more than a fantasy.

The new Laser class had undone China's air superiority in an instant, destroying not only aircraft and missiles, but even shells in mid-flight.

Surface weapons were also put at great risk due to the uninterceptable nature and extremely high speed of the Laser attack.

Following this, several specialized aircraft such as supersonic attack planes and high altitude bombers were deployed, but these all ended in failure stemming from Laser attacks.

The later introduction of the AL (Anti-Laser) round, which creates a heavy metal cloud, gave missiles and air power some room to act, but ultimately, the skies over the battlefield no longer belonged to mankind.

Mankind was left with only observational satellites in the layer above, the low-Earth orbit.

Low-orbit bombings and orbital drop tactics would not be established until the 1990s.

BETA Unit Settled Locations



1973 China, Xinjiang-Uyghur Autonomous Region

The BETA landing unit settled in the PRC's Xinjiang-Uygur Autonomous Region, which lay on the border of India, Pakistan, and the Soviets. The Chinese Army that confronted them lost their offensive capabilities after their air power was neutralized by the BETA Laser class. They sought assistance from the Soviet Armed Forces, but their combined counter-offensive failed, and they retreated while using tactical nuclear weapons as part of a scorched earth strategy.



1974 Canada, Saskatchewan, Athabasca

On July 6th, BETA landing units settled in the Canadian province of Saskatchewan, Athabasca. In response, the US Armed Forces, with permission from the Canadian government, used strategic nuclear weapons to terminate the landing unit, and narrowly avoided the tragedy of Kashgar and Eurasia. In exchange, approximately half of Canada's vast wilderness was contaminated by radiation, turning it into a land of death.

The Chinese-Soviet Combined Army and Humanity's Retreat

In the wake of the Laser class, the tables turned in an instant against the Chinese Military, with the loss of their air superiority. The Chinese government rushed to create a combined force with assistance from the Soviets, but it was difficult to oppose the BETA, which literally covered the horizon with their numbers, when only ground based weapons were available.

Among these ground deployments was a large combined Chinese-Soviet armored corps. However, with the loss of air support, and their means of swift supply and transport, the tanks eventually succumbed to the BETA's numbers and Laser class attacks. The Chinese-Soviet Army commenced a scorched-earth strategy using tactical nuclear weapons, but it was already too late. They were forced to retreat time and time again when faced with the endless stream of enemies from the giant BETA forward base, the 'hive', which had been established at the Kashgar landing point.

Later, the UN Force, consisting of Western nations, provided support, but were unable to stop the BETA's momentum westwards. The West Asian, West Soviet, and European countries began to fall one after the other.

By the end of the 90's, there were over 20 hives, and almost all of the Eurasian continent was controlled by the BETA.



1974 A New Suit of Armor

The US Anti-BETA Space Weaponry development program, which had commenced in 1967, was hard at work to develop a full scale surface-use space weapon to follow up their first achievement; the FP weapon Hardiman.

One project under this program, the 'NCAF-X Project', intended to build upon the designs of the large MMUs that were used for the construction of Icarus I. This project was the trump card to create a 'conceptual all-terrain combat craft' able to be operated in any extra-terrestrial environments between 0 and 1G.

However, immediately after the operational trials with a proof of concept model had begun, the BETA landed in Kashgar.

The UN Force General Headquarters quickly decided to abandon the Moon, and move the front line to Earth. This forced all developments of anti-BETA space weapons designed for low gravity to be halted.

The 'NCAF-X Project' became one of the few surviving projects as it was recognized to be a successor to the FP weapon, which had demonstrated the effectiveness of weapons possessing high versatility and three dimensional movement during its use on the Moon.

The US Congress wished to take the initiative ahead of the Soviets in preparation for the eventual liberation of the Moon. They hence approved the continuation of the project as the development of a conceptual surface-combat craft. Several weeks afterwards, following the appearance of Laser class BETA, humanity's advantageous situation was turning into a grim repeat of the lunar campaign.

The Pentagon, which had recognized the seriousness of the situation before anyone else, allocated a not insignificant amount of resources and funds into the NCSF-X Project, which combined the utility of both surface and air weapons, in order to hurry its deployment.

And so, the conceptual weapon, specialized for the anti-BETA combat, which was unprecedented in mankind's history - the F-4 Phantom Tactical Surface Fighter - was born. Tactical Surface Fighters, abbreviated to 'TSF', boast armor and power on a scale completely beyond those of the infantry-use exoskeletons that had been converted to surface weapons. Usage of large caliber weapons and flight capabilities using jump modules allowed TSFs to fill the gap left by aircraft, creating the expectation that they would become a key part of anti-BETA strategy. However, as they were revolutionary conceptual weapons, additional research and preparation time to train instructors and develop a training curriculum for operators was required to ensure their effective use in actual combat. But during the Chinese-Soviet Army's retreat, humanity witnessed the BETA continuing their invasion, unfazed even by nuclear attacks. This relentless threat prompted many countries to hurriedly adopt the F-4. They would deploy these TSF forces - their trump cards - only after giving air force pilots minimal conversion training. Unfortunately, this resulted in many sacrifices.

Mankind realized that TSFs, which differed from airplanes with their ability to traverse both land and air, required a new class of operator-- The 'Surface Pilot'.

This is a scene from the live ammunition exercises of the proof of concept craft 'YSF4H-1', conducted at the test site of the Groom Lake Air Base, known as 'Area 51', in Nevada, America. In order to reach deployment readiness as quickly as possible, the concept craft 'NCAF-X1', which was originally designed for use on the lunar surface, had minor modifications made before being appropriated. Because of this, the development of a specialized cannon was not yet complete, and the craft retained the direct mounting method on its arms. It equipped the multi-purpose supplemental armor on its right arm, and a 20mm chaingun on its left. To the left is the explosion-resistant capsule used to overlook the trials.



1998 The Fall of Kyoto

Since the introduction of the F-4 Phantom in 1974, TSFs were distributed globally as the undisputed main anti-BETA weapon. To date, the development of modifications and new models is still ongoing. Even so, the BETA's overwhelming numbers could not be stopped, and until the 90s, mankind had only been losing territory, unable to succeed in capturing a single hive, which were the forward bases of the enemy.

Finally, in 1998, the BETA, which had reached the eastern end of the Eurasian continent, crossed the ocean to begin the invasion of the Imperial Japanese mainland. Although the Japanese Empire at the time was being slandered as American territory, it boasted extremely high economic and military power. As the hinterland of the Eurasian front, Japan was able to maintain their high productivity and development, even after the commencement of the Great BETA War.

However, at the beginning of the BETA War, no F-4 TSFs were distributed to the Asian region, including Japan, due to America's focus on Europe at the time. Due to the resulting resentment, as well as the imminent danger, Japan sought to achieve national defense capabilities independent of America, and to eventually become a country with the rare potential to develop TSFs domestically.

As Japan entered the 90s, however, they were forced to defend two fronts at once. North Kyushu was threatened by the Korean Peninsula, and Sakhalin and Hokkaido were threatened by the Soviet coastal region. Furthermore, the IJF forces, much like the UN and COSEAN forces, were worn out by Operation Gwangju, which was conducted at the start of 1998, and they were just only re-establishing their defense line when the invasion struck.

On July 7th, 1998, during a large typhoon, the BETA landed on North Kyushu, then on South Kyushu and Chugoku. In the blink of an eye, they swept through the Kyushu, Chugoku, and Shikoku regions.

Within a mere week of the BETA landing, the Japanese Empire suffered the significant loss of around 36,000,000 people, roughly 30% of their entire population.

Both the Imperial Japanese Force and the US Armed Forces, which were deployed due to the Japan-US Security Treaty, gave their all to defend the Imperial Capital, Kyoto. Despite fighting fiercely for a month, the decision was finally made to abandon the capital, in the face of the BETA's limitless numbers overflowing from the earth.

They transferred the functions of the Imperial Capital to Tokyo, the economic center of Japan, before the IJF themselves conducted a bombardment on the entire city of Kyoto to buy time for a retreat towards the Chubu defense line.

The capital of a thousand years was reduced to ashes, before slowly turning into a wasteland while under BETA control over the following year. Soon after, the BETA continued northwards up the Japanese coast and established their 21st hive on Sadogashima.

The IJF continued a hopeless fight, spread out over the absolute defense line of the Kanto and Tokai regions. During this fight, America abandoned the Japan-US Security Treaty, citing problems with authority and command between the allied countries as their reason, before immediately evacuating all American troops out of Japan.

As the IJF could not account for the sudden withdrawal, the East Kanto region promptly fell by October, 1998.

The Sadogashima Hive already proved to be a huge threat as the BETA continued their advance. However, before reaching the new Imperial Capital of Tokyo, the BETA suddenly changed their course. Although Japan had been granted a moment's grace, it was in this period of respite that the BETA constructed yet another new hive, this time at Yokohama.

Faced with the Yokohama Hive, which grew at abnormal speeds, and without the means to act on it, the IJF was forced to continue its desperate defense surrounding the Tama River.

An F-14 Tomcat, a 2nd generation TSF from the US Armed Forces, conducting artillery support from the skies of Kyoto during the final retreat. During the Defense of Kyoto, America's generous deployment of the F-14, which was considered a masterpiece, and their use of the high-powered yet costly long-ranged guided missile system AIM-54 'Phoenix' suggested that they were giving it their all to support the IJF, at least for the time being.



1999 Operation Lucifer: The Beginning of Humanity's Counter-Attack

With each passing day, mankind's future plunged deeper into despair. By the start of 1999, the global population had declined to approximately 2 billion, less than half that of 1973. All of Asia, excluding the coasts of China and South East Asia, were controlled by the BETA.

The Indian subcontinent and the Arabian Peninsula had both been destroyed, and more than half of Japan continued to be suppressed. Europe had completely fallen, except for the British Isles and the Mediterranean Islands. Even in Siberia, the BETA were attacking the Kamchatka Peninsula. The European powers and the Soviet government had all evacuated to foreign leased territory, and the world was inundated with refugees. Against all this, days without progress in counter-offensives continued.

Then in the August of 1999, with the world on the brink of collapse, a single beacon of hope shone - a counter-attack. Operation Lucifer, the large scale operation to capture the Yokohama Hive and reclaim Honshu, became something of a special mention during the BETA War for several reasons. First and foremost, Operation Lucifer had been humanity's first success in capturing a hive. Although there had been cases of successful defense efforts, such as those of the British Isles, in repelling large-scale invasions and reclaiming temporarily occupied areas, it was in Operation Lucifer where mankind had first been able to eradicate a hive and reclaim the land on which a BETA structure had been constructed. Such land was thought to be firmly BETA controlled territory.

However, when looking back on the operation, one can only say that the ends justified the means. The operation was highly political, seeped in the conflict between the IJF, who owned the occupied areas, and the US Armed Forces, which were the main strength of the UN Force. Following the abandonment of the treaty in the previous year, there was a deeply rooted distrust of Americans by the Japanese.

The operation was hence conducted alongside the COSEAN forces, which would act as a means of close liaison. Although their entry had convinced the US and IJF forces to take part in the program, allowing it to commence, the operation was still launched in a rushed state, with the chain of command left unclear.

Although this remains a military secret, never revealed to the public, this operation also reflected the ideologies of the 4th and 5th plans of the 'Alternative Program'; a highly confidential program conducted under UN leadership since prior to the Lunar War, to develop an "alternative strategy against the BETA without relying purely on military strength".

Those backing the 4th Plan wanted to capture the hive in order to secure the G-elements, which they had long sought, and to also overturn the declining political strength of the Japanese government, which was leading the program. On the other hand, the 5th Plan was largely backed by the US. The 5th was a backup plan relying on the G-bomb, which could only be produced using materials of BETA origin. To the supporters of the 5th Plan, this operation was an opportunity to demonstrate this new bomb.

The operation to capture Yokohama Hive commenced on the 5th of August. It was a hard-fought battle due to the numbers of the BETA vastly exceeding the expectations set by previous hive capturing missions, as well as due to the lack of cooperation between the participating nations. The operation ended with a narrow victory after the US Armed Forces, composing the main rear guard, dropped two G-Bombs without warning on the Yokohama Hive, wiping out the BETA monument and all the surrounding BETA. Regardless of whether or not the ends justified the means, Operation Lucifer's success was the first significant victory since the commencement of the BETA War.

However, this historical victory drove a wedge further down a divided mankind, leaving many new points of contention for the future of the BETA War. Securing victory by using the G-Bomb (Fifth-Dimensional Effect Bomb), a weapon derived from BETA technology, left a deep impression that there was no way for conventional military strength to defeat the BETA.

This realization brought many countries on the front line to despair. Furthermore, the G-bomb left a semi-permanent gravity abnormality in the blast zone. It was a double edged sword, with unknown effects on humans and other life forms. The hard-line anti-US stance of the IJF had worsened, due to the deployment of such a weapon on their territory without permission. As a result, the Far East/Pacific defenses were left with much deeply rooted political confusion.

Moreover, regarding Alternative Program, both the 4th and 5th Plans drew negative attention following the events at Yokohama. The 4th Plan had made significant progress by liberating areas surrounding the ruins of the Yokohama Hive. However, since they allowed the deployment of the G-bomb, they were seen as less reliable by the UN, which had taken the viewpoint that ultimately, the 4th Plan's success would just depend on the G-bomb. On the other hand, the 5th Plan also made progress by demonstrating the G-bomb in combat, and by achieving a victory with it. However, due to their monopolization of G-elements, and the excessive strength of the G-bomb, many opposition groups sprung up worldwide.

And so, the 20th century passed, along with its glory and defeat. The chaotic state of mankind was unchanged, and the word 'extinction' felt more real with each passing day. With no secure outlook for the future, humanity reached the 21st century, and the 22nd of October, 2001—



Areas where all structures were destroyed due to G-bomb shock waves
Urban areas where plant life was affected by the G-Bomb

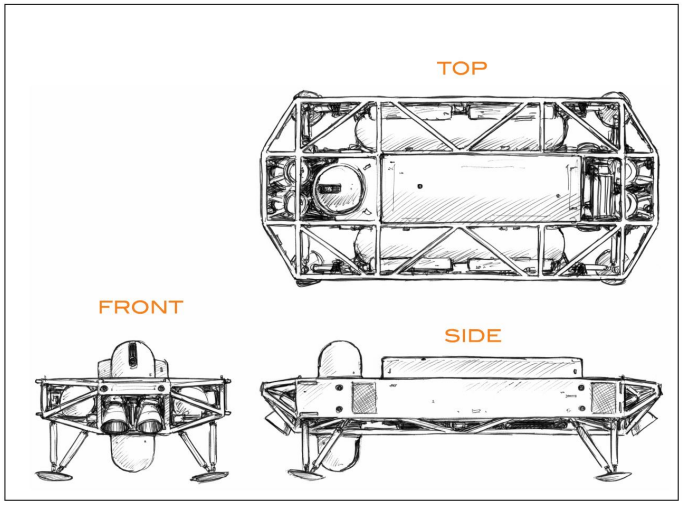
Although the G-bomb had carved out the surroundings of the Yokohama Hive's monument, its direct blast radius had greatly underperformed initial expectations. The ruins remaining in Yokohama City were the result of attacks using conventional weapons, rather than the G-bomb. However, an invisible gravity anomaly field was created in the area around the city, and is interfering with reconstruction efforts.

By the insignia on her epaulette, it can be assumed that this female Surface Pilot, looking over the tragedy of Yokohama, is from the UN Pacific 11th Force, Nerima Base 303rd Tactical Armored Wing. Perhaps she is distraught after seeing the city of Yokohama completely destroyed by the BETA. Or perhaps her heart is aching over the memories of friends, family, or even lovers who were lost at Yokohama...

MUV-LUV ALTERNATIVE WAR

MECHANIC MATERIALS

Below are the weapons that were deployed or planned for deployment in the Lunar War.
Before the BETA appeared, development and imports of moon-based weaponry was strictly forbidden by a global treaty. At the time, only small arms for security and peacekeeping purposes were available.
As a result, mankind was forced to adapt to the sudden emergence of BETA, making use of whatever was available at the time.



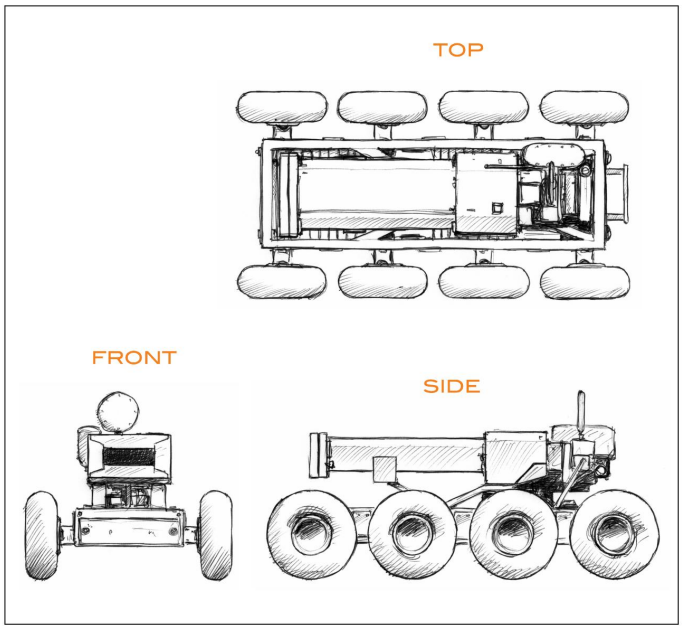
(LCM-2)

The LCM-2 (Lunar Carrier Module-2) achieves spatial flight with its four rocket engines, equally distributed on the front and back of the craft, as well as four attitude control thrusters spread across the craft. Because of its shape, it was nicknamed the 'Carpet', in reference to a 'magic carpet'.

Originally intended as a transport shuttle between Moon bases for personnel and cargo, it was hastily refitted with a 20mm autocannon for deployment as an improvised combat module, following the onset of combat.

The cannon, which uses gunpowder cartridges, was able to be fired even in a vacuum. However, the resulting recoil often disrupted its attitude and course, so it was necessary to land the craft when firing.

Later, the module was upgraded locally at Moon bases into the LCM-2A1, which included automated control systems to synchronize the thrusters with the autocannon in order to reduce the effects of recoil. However, this created a fuel problem that was difficult to solve, so firing while flying was restricted only to emergencies.



LV-4 Self-Propelled Gun

The LV-4 (Lunar Vehicle-4) is a modification of eight-wheeled lunar rovers that were originally intended for transporting personnel and cargo. After refitting these with a low-recoil gun, the LV-4 was deployed and operated as an improvised suppressive weapon.

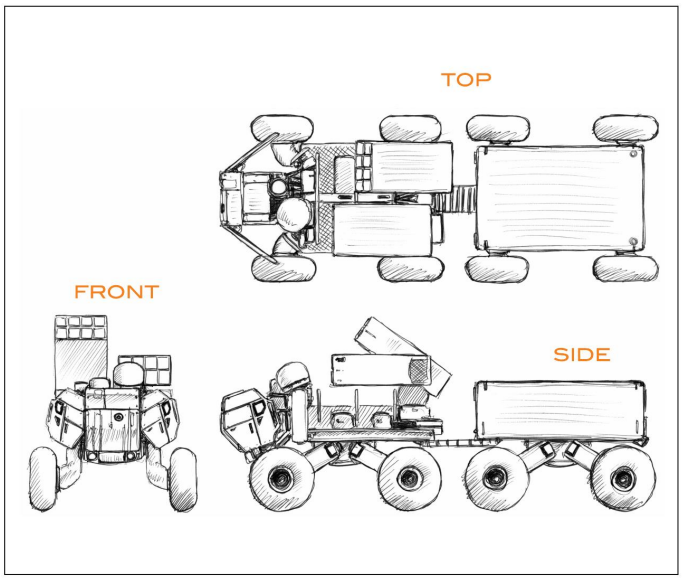
Although the UN Forces General Headquarters made efforts to expand its ability to send resources to the Moon, the deployment of large firearms capable of stopping the BETA offensive, such as high caliber cannons, was riddled with problems beyond those related to transportation.

As practically no blast effect could be achieved on the lunar surface, due to the lack of atmosphere, they mainly resorted to using solid metal rounds, despite the additional transport costs these incurred. Furthermore, under the effects of low gravity—approximately 1/6th of that of Earth's—the weight of the vehicle alone was not enough to stop the recoil.

However, the anchor spikes and suspensions available for the lunar vehicles and heavy machinery at the time were not designed for military use. As they lacked the required durability, limits were placed on the amount of times a large weapon could be used.

To quickly resolve this issue, the UN deployed low recoil, small caliber cannons to the moon, and adopted a high-angle firing method for the LV-4 to disperse most of its recoil into the ground.

However, this high-angle system caused many more problems. Due to the low gravity on the Moon, there needed to be a significant distance to the target. Compounded with the minimal blast effect, this caused incredibly low accuracy and damage against moving targets. As a result, by the final stages of the lunar war, they were removed and the cannons were placed in fixed positions at bases as close-range base defense weapons.



(LV-2)

The LV-2 is a mobile vehicle created by linking two four-wheeled rovers that were originally intended for transporting resources. However, on the LV-2, a rocket launcher is attached to the front vehicle, while ammunition is placed in the rear vehicle.

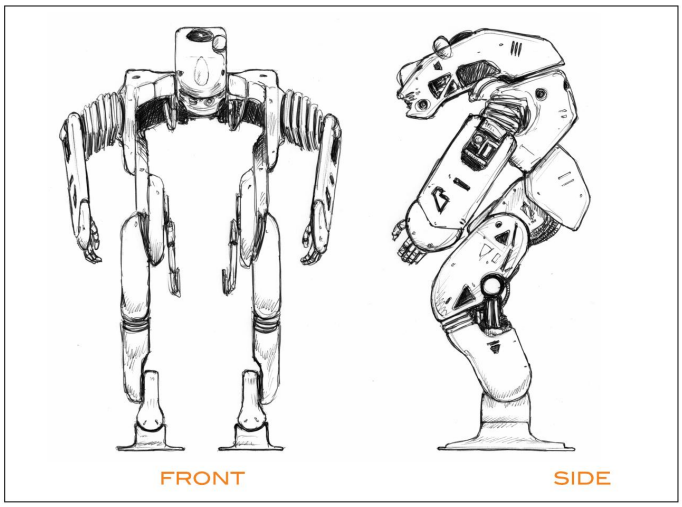
Due to its visual resemblance to the Soviet Katyusha rocket launcher used in WWII, frontline personnel gave it nicknames such as 'Stalin's Moon Organ' and 'Lunar Katyusha'. Because rockets accelerated using their own propellant, there was very little recoil when firing them.

During the early stages of design, there was some research into using missile launchers with guidance systems, but it was later decided that rocket launchers would be used instead. This was due to constraints regarding cargo sizes, where using larger missiles would make it impossible to secure the logistics lines to support the front line.

Even with these changes, the weapon did not perform well in combat for many reasons. Firstly, there were still limits on the amount of rockets that could be transported, even with the smaller variety. Secondly, the wide blast radius was inefficient and ineffective against the densely packed BETA on the lunar surface. Thirdly, rockets needed to be kept at a far greater distance due to the low gravity. Finally, the explosions also caused the regolith to stir up. As a result of these issues, they were labelled as defective soon after being deployed, and would end up being operated as horizontal, direct-fire weapons against large strains of BETA.

Several months later, they would be scrapped entirely due to their poor cost-performance ratio and lack of flexibility.

And so, the launcher component would be appropriated as a base defense weapon, while the vehicle itself would be used as a multi-purpose support vehicle for transporting and resupplying FP forces.

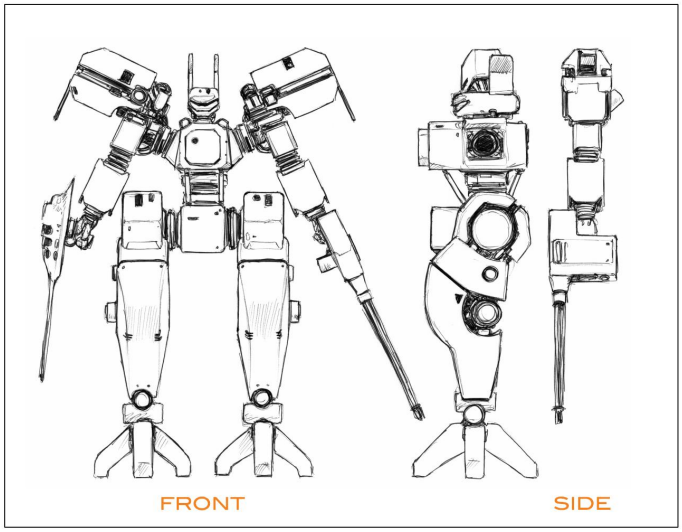


Hardiman

The Hardiman, mankind's first FP (Feedback Protector) weapon, was developed from the MMU (Manned Maneuvering Unit). MMUs were pieces of equipment worn over space suits to function as an extension of the body during construction and excavation work in space.

The Hardiman brought a great change in anti-BETA warfare on the lunar surface due to its ability to use armaments too heavy for regular infantry, while allowing for three-dimensional movement which was unavailable to armored vehicles.

Although they did not turn the tide of the battle, it is undeniable that they marked a turning point in humanity's anti-BETA strategy, by becoming the technological foundation for Exoskeletons, and eventually, TSF development.



NCAF-X1

The NCAF-X1 is the proof of concept trial craft developed by US manufacturer McDaell, which led the 'NCAF-X Program'.

Several craft were deployed on the lunar front as test units to gather data on lunar combat.

Due to the deteriorating conditions on the Moon, the NCAF-X Program was later converted to a conceptual surface combat craft development program for conditions on Earth, and the resulting craft became the basis of the F-4 Phantom's development.

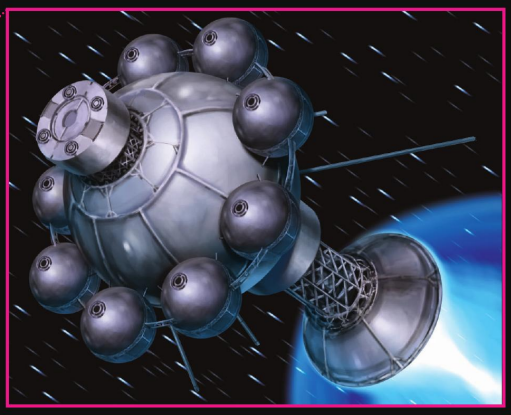
This prototype consisted of the craft itself, a multi-purpose supplemental armor, fixed spikes on its upper torso and on the tips of its feet, a 17mm chaingun fixed to its forearm, and a jump module for attitude control.

Despite taking part in some combat trials, the results of these trials are unknown.

MUV-LUV ALTERNATIVE TIME LINE

Following the Second World War, large-scale conflicts between countries were beginning to calm down, at least on the surface. However, in 1967, when the lifeform that would be later known as 'BETA' was encountered, humanity began to walk down a path of fighting, though not for supremacy, but for survival.

1944	**The End of the Second World War** The Allies (The US, The UK, and The USSR) are victorious over the Axis (Germany, Italy, and Japan). Although Germany was able to temporarily occupy almost all of Europe, America dropped two atomic bombs on Germany, after the European counter-offensive, securing victory for the allies. Ideological clashes that became apparent during the war split the world into the Western and Eastern blocs, centered around the US and the Soviets respectively. The two powers enter the Cold War. Global frameworks such as the United Nations (UN), the North Atlantic Treaty Organization (NATO) and the Warsaw Treaty Organization (WTO) become established. The Empire of Japan is defeated, but is spared an unconditional surrender after reconciling with the Allies. However, Japan becomes a semi-vassal state, and was essentially placed under US control. Japan is then introduced into the global political climate of the Cold War as one of America's most valued allies in the Far East, and commences post-war reconstruction.
1946	**US: Space Command Founded** The US founds the USSC, the 6th branch of the US military, following the Army, Navy, Marines, Air Force, and Coast Guard.
1950	**Commencement of the Daedalus Project** NASA and ESA collaboratively commence an exoplanet surveying project in top secret. It later develops into an international space development program, as other Western countries joined. Its development stages were revealed to the public as the Mercury, Gemini, and Apollo Projects. Technology such as large multi-stage rockets, orbital shuttles, space stations, and MMUs were put into practical use, one after the other.
	Preparations for the Daedalus Project The Daedalus Project was the end goal of a combined space development program, the first of its kind. Manned flights to satellite orbit and the Moon were conducted as part of several preparatory plans. Additionally, construction was being completed in stages for developments such as large orbital stations, and structures on the lunar surface, which included a permanent lunar base. Several large orbital stations were constructed in order to support the construction of the permanent Moon base, while large space shuttles were developed to secure a supply line between Earth and the Moon. The US led the Western nations in completing the international permanent Moon base Plateau-1, and commenced research across several areas in fields such as resource exploitation and geological surveying. The Soviet-led Eastern Bloc commenced a similar project. Despite initially leading the development race, they lost to the Daedalus Project in the race to land on the Moon. They would then shift their focus to unmanned probes and low-orbit insertion technology.
	The Japan-US Security Treaty As part of this treaty, the American occupation forces become the USFJ (United States Forces Japan), strengthening the influence of the US in the far east. Accepting their state of military dependence on the US, Japan pushes for the recovery of the nation's strength.
1955	**US: Enlarged MMUs Considered** The construction of the unmanned, extrasolar probe 'Icarus 1' is delayed. In response, enlargements of the MMUs that assisted its construction are proposed and accepted.
	Japan: Entry into the Prometheus Project Japan enters a subsidiary of the Daedalus Project. Their responsibilities include assisting in the orbital construction of Icarus 1, developing materials, and clearing debris.
1956	**US: Super Carbon Developed** Super Carbon, a material for use in probes, is developed in research facilities at the large orbital space station Hope II.
1957	**US: Development of the Large MMU** The large MMU, developed under the Daedalus Project is put into practical use. A super carbon multi-purpose machining knife is adopted for use with the MMU's manipulator.
1958	**US: Viking 1 Discovers Life on Mars** Life which was assumed to have originated from Mars is confirmed by image data sent from the landing craft of the Mars probing satellite, Viking 1. Observational data from the satellite reveals that they inhabit the entirety of Mars. Immediately after transmitting this image, the landing craft becomes unreachable. Subsequent American-Soviet probe landing projects all result in failure, leaving details of the lifeforms unknown.
1959	**UN: Dignified 12 is Summoned** Several large structures were found on the surface of Mars by a satellite probe, suggesting that the Martian life forms were intelligent. Dignified 12, a secret research agency consisting of twelve global authorities in fields such as mathematics and linguistics, is created to research methods for cross-species communication.
1961	**Icarus 1 is Launched** The large, unmanned space probe equipped with a nuclear pulse/ram scoop drive is launched from satellite orbit. The largest of its time, its goal is to gather scientific data on deep space and find habitable planets for human settlement.
	Japan: Formation of the Imperial Aerospace Force Japanese space programs are transferred from the National Space Development Agency (NASDA) to the newly created aerospace force. International projects, such as the Prometheus Project, are also transferred.
1965	**Japan: Formal Adoption of the Type 65 Multi-Purpose Machining Blade** The Aerospace Force formally adopts the Super Carbon multi-purpose knife as auxiliary equipment for their large MMUs. With the introduction of the F-4 TSF, these are renamed to the Type 65 PB Knife and are adopted as auxiliary weapons.
1966	**UN: Commencement of the Alternative Program** Dignified 12 is transferred to the Alternative Program, which is promoted to a global-scale undertaking.
1967	**Sacrobosco Incident** A geological survey team from Plateau-1 is wiped out at the Sacrobosco Crater after identifying beings similar to those on Mars. This becomes mankind's first encounter with extraterrestrial species.



Commencement of Daedalus Project

Though commencing in 1950 as a top secret collaboration between the US and Europe, it later became a multinational space development program, with many Western countries joining. Through it, technology such as multi-stage rockets and space shuttles are put into practical use.
Japan had also entered the project in 1955.



Sacrobosco Incident

An incident where a geological survey team from Plateau-1 was wiped out while surveying the Sacrobosco Crater. Life forms matching those found on Mars were identified through a report sent just before the survey team was wiped out. The incident left its name in history as being mankind's first contact with an extraterrestrial species.



US Deployment of the F-4

With the deployment of humanity's first combat-ready TSF, the F-4 Phantom, a way to oppose the BETA is finally gained. The craft was licensed to be produced in many countries, with numerous versions being developed.

	First Lunar War Breaks Out / Extraterrestrial Species is Named 'BETA' Immediately after the Sacrobosco Incident, the Martian life forms commence a large scale invasion. Combat breaks out across several locations on the Moon. In response to this, the unknown life forms become classified as BETA: Beings of Extra-Terrestrial origin and Adversaries of the human race. The ensuing combat, which lasts until 1973, comes to be known as the First Lunar War.
	US: Fundamental Research into Anti-BETA Space Weaponry Commences Upon scrutiny of the outcome of the Sacrobosco Incident and the subsequent encounters, the Pentagon raises concerns about the combat potential of existing space weaponry. A military-industrial alliance begins fundamental research on anti-BETA weaponry, which is accelerated by assistance from the government. Development project across a wide range of fields, from creating new materials to electronic engineering, are presented. The NCAF-X Project, a collaboration between four US Armed Forces branches—Army, Navy, Air, and Space—is commenced as one such project.
	US: The Formal Commencement of NCAF-X The NCAF-X Project was a conceptual weapon development project which sought to adapt large MMU technology into surface combat weapons for use in the 0-low G conditions of the Moon. However, as the conditions on the Moon deteriorated, it was converted into a plan to prepare for the BETA invasion of Earth. It would set the groundwork for mankind's first TSF, the F-4 Phantom.
1968	**UN: The Alternative Project Proceeds to the second stage** In response to the emergence of a state of war against the extraterrestrial beings, the Alternative Program is escalated to Phase 2 in order to conduct more direct research on BETA ecology. They would retroactively call the previous phase "Alternative 1", and call the current phase "Alternative 2". The goal of the second plan was to conduct a more direct investigation of the BETA's biology, and to research a method of communication by capturing a BETA specimen. Their biologically implausible appearance and their ecology would shock researchers, and latent fears of the unknown would encourage the adoption of the third plan "Alternative 3", which disregarded bioethics. Though wrought with sacrifice and huge costs, no decisive results were obtained, and Alternative 2 was often ridiculed as having only proving that BETA were carbon life forms. However, its contribution to humanity was by no means small, having made significant discoveries such as a hypometabolic enzyme.
	UN: Summons for the Alternative 3 Contingency Plan After the stagnation of Alternative 1, the Soviet Union proposed a plan for direct mind-reading through ESP. The UN adopts the Soviet proposal as the follow-up plan, while preparing to abort Alternative 2. They begin to allocate funding to the Soviet Academy of Sciences. This accelerates research on artificial espers.
1970	**US: The Front Line Deploys Mechanized Infantry Forces** Combat units consisting of FP weapons are deployed on the lunar front. The FP (Feedback Protector) weapon was the first achievement of the anti-BETA space weaponry development program, which first commenced in 1967. These were later developed into ES (Exoskeleton) weapons, and were deployed to ground forces across the globe as mechanized infantry armor.
1971	**Japan: Decision to import and commence research on mechanized infantry armor** In light of the FP weapon's relative success during the First Lunar War, Japan commences importing the FP weapons, while also conducting fundamental research on them as domestically producible and effective anti-BETA weapons.
1972	**European Union Integration and the Restructuring of the NATO Army** The European Community (EC), which had originally been formed as an economic association, develops into the European Union (EU), under the pressures of the extraterrestrial beings and the war situation. It establishes closer collaborative stances in regards to politics and military. At the same time, the NATO Armed Forces underwent restructuring.
	US: Reveals Prototype TSF to Allies After the US government unveil the news of a prototype TSF, McDaell, the developer and manufacturer, begins marketing it to allied countries.
	Japan: Immediate Decision to Import the Concept Weapon F-4 Japan makes the decision to import the TSF before any other nation, and commences looking into specifications to request of the manufacturer. They order melee blades for exclusive use by Japanese craft.
1973 April 19	**BETA: The Invasion of Earth** The BETA landing unit constructs the Original Hive (H:01 Target Alpha), their forward base, in the middle of the Eurasian continent.

	First Lunar War Ends Faced with the emergency situation of the BETA invasion of Earth, the UN Space Command Headquarters declares the abandonment of Plateau-1 and a complete retreat from the Moon. After six years of fighting, humanity was routed, and the Moon became completely occupied by the BETA. "The Moon is hell," uttered by General Campbell, commander of the lunar forces, highlighted the harsh reality of the war with the BETA.
	PRC/USSR: Operation Hongqui With initial combat in their favor, and looking to secure a monopoly on the alien technology, the Chinese decline assistance from the UN Forces. However, the appearance of the Laser class and the resulting destruction of their air power immediately put them at a disadvantage. Despite making requests for assistance to their Soviet allies, it was too late, and in the aftermath of constant retreats, they would conduct a scorched-earth strategy using tactical nuclear weapons. However, this would prove completely ineffective in slowing the BETA's momentum.
	UN: Alternative 3 Commences, Alternative 2 Requisitioned Alternative 2 is suspended with the BETA invasion of Earth, and the Soviet-led backup plan evolves into Alternative 3. Research into ESP and genetic manipulation fuels the development and production of artificial espers. Most would fall victim to the BETA during hive infiltration operations that were intended to attempt readings.
1974	**1974 UN: Earth's Population Decline** The UN Statistics Division announces that in approximately one year since the invasion of Earth began, the global population had declined by about 30%. This was stated to be directly resulting from the war with the BETA. Since then, the global population would continue to decline. By 2001, it would be at just over a billion.
July 6th	**US: Prevention of the Second BETA Invasion** The American Armed Forces succeeds in the early elimination of a BETA landing unit by the focused use of strategic nuclear weapons. Because of this rapid response, which took note of the tragedy in Eurasia, the North American continent is spared from a direct BETA invasion. But as a result, approximately 50% of Canada's territory becomes uninhabitable due to radioactive contamination.
	US: Deployment of the F-4 TSF Humanity's first TSF, the F-4, rapidly gains popularity as the first proper anti-BETA weapon. Auxiliary armaments are also adopted, such as the CIWS-1 (Close Combat Knife, later renamed '1A') the CIWS-2 (Melee Blade, later renamed '2A'), and the WS-16A (Assault Cannon, 105mm smoothbore cannon, 20mm autocannon). The F-4 series, which was exported across the globe, was the foundation of many variants, and continues to be operated as a mainline craft, even after the advent of 2nd and 3rd generation TSFs.
	Japan: License Production of the Type 74 PB Blade Following the Athabasca Incident, US Congress pass a bill that prioritizes the bolstering of anti-BETA defenses in North America. This also prioritizes reinforcing the most threatened front, the European Front. As a result, less importance is placed on the Japanese front. Japan was set to purchase one group's worth of completed craft from the US to cover for the delay in domestic production that would result from the need to establish production infrastructure, but this—and subsequently, their deployment schedule—fell apart from the US Congress's passed bill. As a result, the Japanese military's distrust of America reached its peak, noting the irony that only the Type 74 PB Blade and Type 65 PB Knife were delivered, without the craft to utilize them.
	US: Sine Project Remains of the landing units recovered from Athabasca are sent to the Los Alamos labs where research on the enemy technology begins, under the supervision of Professor William Gray. Several new elements were discovered and became targets for military appropriation research. These were named the 'G-elements' after their discoverer.
	US: Strategic Defense Initiative Sensing the danger of the BETA's direct invasion of Earth, the US announces their Strategic Defense Initiative. It is comprised of the strengthening of orbital defense systems to intercept landing units in space. Realizing that satellites, orbital stations, and spacecraft were safe from Laser-class attacks, they placed a scouting line on the satellite orbit path. They also proposed a solid defense network with the combined use of space, orbital, and high altitude interceptions to complement surface attacks, all of which had been previously conducted separately.
October	**UN: Discovery of the Mashhad Hive, H:02** Satellite reconnaissance detects a monument, similar to that of Kashgar, in the former Iranian territory of Mashhad. Further investigation identifies a Gate and an underground tunnel structure (stab), resulting in its designation as H:02, the Mashhad Hive. Following this, the Kashgar Hive was given the code H:01. This news of the hives' ability to spread came only as the space interception system was being designed.

	UN/Japan Entering the Strategic Defense Initiative After giving the Japanese much praise for their results and research during the Prometheus Project, America requests their entry into the Strategic Defense Initiative. The Imperial Diet immediately agreed to the US joining the Initiative despite being aware that their main goal was to gain economic cooperation, due to their military reliance on the US in resisting an emergency situation of a BETA invasion of the mainland. The US recognizes that the SDI requires more orbital weapons than they can produce themselves, and successfully push for the UN to adopt it as an international defense project. The US gains the right to command the project, and takes the opportunity to reorganize the UN Space Force and the orbital fleets of individual countries.
1975	**BETA: Construction of the Uralsk Hive, H:03** A group of BETA heading north from the coast of the Black Sea invades the Soviet territory of Kazakhstan. They construct the Uralsk Hive.
	USSR: Communist Party Government Relocates Capital City to Khabarovsk Pressured by the BETA invasion, the Communist Party government transfers state functions from Moscow to Khabarovsk. The evacuation of major domestic and military industries also commences.
	US: Commencement of HI-MAERF Project Conducted in top secret, HI-MAERF was a project to develop a strategic aeronautic fortress that could independently invade enemy territory and destroy hives. Lockweed, North Americana and McDaell.Doglam commenced the collaborative project with the development of the XG-70, which would utilize Gray-Eleven (the 11th G-element to be discovered), and the XF-108, a dedicated escort TSF.
	UN: Construction of SHADOW In response to the two BETA landing units, the UN Security Council decides to construct the outer-space interception system, 'SHADOW' (Spaceward Hardwares for All-Round Defensive Ordnances and Warheads). Construction begins on the three pillars of SHADOW; LID (Lunar Intruder Detectors), SpaceONE (Space Orbital Nuclear Engager), and ARTMISS (All-Round Terra-defense Missile Interception Satellite System).
	USSR: Deployment of the MiG-21 From the licensed production of the F-4R, the Soviet Union completes the MiG-21 Balalaika, boasting greater close combat capabilities from increased cold protection and reduced weight.
	PRC: Deployment of the J-8 The PRC Army develops the Jian-8 by revising the MiG-21 given to them by the Soviet Union. Deployment of the craft follows.
1976	**BETA: Progression into Northern Eurasia, Construction of Velsk Hive H:04 and Minsk Hive H:05** The BETA moving west from Kashgar progress northwards after taking over the Black Sea coast. Hives on the Soviet territory at Velsk and Minsk begin construction.
	Japan: Commencement of the Akebono Program In order to resolve the global TSF deficit, the US encourages TSF development among its allies, and for allies to send technical teams for training. As part of this, Japan commences the Akebono Program, a civil-military TSF development and operation training program, and sends a research team of 219 people to the US. Behind this decision was the Imperial Ministry of Defense's lingering resentment over the earlier F-4 supply issue. They start to believe that they should develop and produce TSFs domestically.
	US: Export of the F-5 To solve the supply deficit with the F-4, the US hurriedly converts the easily producible T-38 training craft into the F-5 Freedom Fighter. Europe, suffering a larger scale invasion, is prioritized for export. Less than 30% of exports are to Asia, in which the fighting had reached a stalemate. Models made after Type D (that is, Type E and beyond) would be classified as quasi-2nd-generation craft, and be named the Tiger II.
	US: Deployment of the F-11 Grunnan aggressively markets its F-11 to Asian countries such as Japan, which were still waiting for their F-4 craft. They also later performed sales pitches to the Imperial Royal Guard for a version with strengthened engine output. Although it boasted high stability, its engine output was low, and it would be promptly replaced by the F-4 Phantom.
	Japan: Operational Testing of the F-4J Gekishin McDaell delivers a single squadron of 12 craft to Japan ahead of time, with all peripheral equipment and components required for operation. They delivered early for fear of Japan issuing cancellations on the orders of their F-4, following the intense marketing of the F-5 and F-11.
	France: Deployment of the F-5F The French Army names Dass Ault's licensed production model F-5F as the 'Mirage III'. Bearing its new name, which followed the French military's tradition, it commenced deployment.
	Britain, Germany, Italy: Deployment of the F-5E/G/I The multinational company Palavia Industrial develops licensed productions for local-specification F-5s imported by Britain, Germany, and Italy.
	Sweden: Deployment of the F-5S(J-35) SAAG remodifies Dass Ault's F-5F and produces it under license as the J-35 (F-5S) Draken before deploying it. Together, the five European F-5 series produced and modified under license are collectively called the 'Five Sisters'.
	Israel: Deployment of the F-5F Israeli arms manufacturer IEI refurbishes the Mirage III given to them by France to make it suited for desert combat. It is renamed the F-5F Kfir and is deployed for combat.
1977	**BETA: Ural Mountains Reached, Construction of Ekibastuz Hive, H:06** The group of BETA from Kashgar invades Soviet territory from the south of the Ural Mountains. They take control of the area up to northwestern Soviet Union territories and build the Ekibastuz Hive H:06 north of Balkhash Lake.
	Alternative Program Leadership Bid With the third plan failing to reach decisive results, some countries that still hold power begin to resent the idea of the anti-BETA strategy initiative being held by a country other than themselves. They begin to inject large amounts of funds into fundamental research in order to attract the next plan to their country. Of these nations, the US would place a great focus on researching technology of BETA origin, and would gain an advantageous position to lead the project.
	UN: Testing Diversionary Tactics Against The BETA Various battles across the Eurasian continent are conducted to test the effectiveness of diversionary tactics against the BETA, as suggested by the results of Alternative 3. Although 80% of the battles end in defeat for the human side, the results were able to roughly estimate BETA communication methods, and would form the foundations of future anti-BETA strategies.

	Japan: Deployment of the Type 77 (F-4J) The licensed production of the F-4 by Fugaku, Mitsuhishi, and Kawazaki reached full speed. It was developed as the Imperial Force specification Type 77 F-4J Gekishin, and its deployment was prioritized to the Western District Army's 8th Division.
	US: Deployment of the A-6 Grunnan's A-6 Intruder becomes the world's first amphibious craft, with a variable transformation mechanism for land and sea. It is classified as a Tactical Surface Attacker (TSA) and was developed to conduct assault missions on coastal areas, in conjunction with submarine carriers. Their carrier for long range operations, the Swordfish class medium-sized submarine, was deployed at the same time. The A-6 would later be produced under license across Europe and in Japan.
1978	**Europe: Operation Palaiologos Acquires the Volk Data** After two months of diversionary attacks by the WTO and NATO forces, the Soviet Armed Forces' 43rd Tactical Armored Division's Volk Regiment managed to infiltrate the Minsk Hive (H:05). The Volk Regiment was wiped out several hours after infiltrating, resulting in a failure of the operation. However, the regiment's observational data of the hive's stab—the 'Volk Data'—would become a significant guide for future TSF developments and Surface Pilot training.
	BETA: North-western Eurasia Occupied, Construction of Surgut Hive H:07 Immediately after Operation Palaiologos, the BETA commence a major offensive. This offensive would split the Soviet Union into east and west, make the battered European front fall apart, and expel mankind from the northwestern portion of the Eurasian continent. They construct a hive in the Soviet territory of Surgut.
	Middle East: Forming the 1st Anti-BETA Jihad Middle Eastern countries declare a holy war against the BETA. A cross-denominational and simultaneous counter-offensive succeeds in temporarily pushing the front line forward.
	USSR: Relocation of the Third Project's Headquarters Upon being invaded by the BETA, the headquarters for the Soviet Alternative 3 is moved from Novosibirsk to Khabarovsk.
	US: Deployment of the A-10A Deployments begin for Firechild's A-10A Thunderbolt II, a heavy TSA that specializes in base defense and support. Its ability to stop the Tank class granted it high praise, especially on the European front.
1979	**US: Successful Test of the Moorcock-Lechte Drive** Dr. Karls Moorcock and Dr. Ristomatti Lechte's collaborative experiment during the HI-MAERF project succeeds, establishing the technology to manufacture an anti-gravity reactor.
	US: Basic Research into G-Element Weapons During the development of the Moorcock-Lechte Drive, a conceptual 'G-Bomb', capable of dealing decisive blows on the BETA, is suggested, strongly influencing American strategies. Upon completion of the anti-gravity reactor, the US invests significantly into Boening and Rokswell to commence research and development of such a weapon.
	Japan: Revision of the Fundamental Law of Education Japan revises its Fundamental Law of Education, in preparation for a full-scale BETA invasion of Japan. Its main goal is to cultivate excellent Surface Pilots by building a new system and environment for the gifted and talented, and focusing on selection based on aptitude.
	Japan: Akebono Program Ends Research into fundamental technology regarding the development and operation of 1st-generation TSFs is complete.
	US: Transferal and Restriction of TSF Production Technology The deficiencies of the TSFs in the frontlines were improving due to the acquisition of technology by several countries and their resulting domestic productions. Noting this, the US Congress passes a law to forbid the foreign transfer of next-generation TSF production technology.
	US: Santa Fe Program Commences The 'Memorandum on ML Theory-Based Strategic Weapons of Mass Destruction' is submitted to the President by a participant of the HI-MAERF project. In the same year, a separate project commences, utilizing the ML Drive as a simpler supercritical reaction weapon.
	UN: Vancouver Agreement Enters Force A UN Security Council resolution mandates that the war with the BETA, including operations such as hive captures, would be conducted under UN leadership. The UN's justification is that there has been a lack of coordination in offensives thus far, and that this had resulted in the rapid expansion of BETA controlled territory. Member states' right of belligerency becomes restricted to self-defense and collective self-defense, and any technology gained from the BETA would be placed under UN jurisdiction.
1980	**Europe: ECTSF Program Commences** Having agreed on a TSF development program in 1978 after the formation of the European Union Force, the UK, Germany, France, and other European nations formally commence the ECTSF Program. With a goal of practical implementation by 1985, the European nations collectively commence research.
	UN: Negotiations Over Accepting Asian and European Refugees With much Asian and European territory lost during the BETA invasion, the UN begins negotiating with countries further back from the front lines to accept refugees.
	USSR: Discussions over the Lease of Alaska from the US Although the US refuses to sell Alaska in bilateral talks with the Soviets, negotiations proceeded in the direction of a conditional lease.
	USSR: Deployment of the MiG-23 Mikoyam Guluvich Design Bureau produces the MiG-23, the first purely domestic Soviet TSF. It is a redesigned MiG-21, with capabilities matching quasi-2nd generational TSFs. However, its operational rate remained poor, due its low maintainability, resulting in the development of a further redesign being launched soon afterwards. At the same time, emergency refurbishing of already deployed MiG-23s was conducted, and they were offered at a low cost to Asia and Africa, with the goal of maintaining political influence.
	US: LWTSF Program As part of research on close combat TSF technology, technological demonstration trials begin for small, lightweight craft with high mobility. General Dynomics and Northrock develop the proof of concept craft YF-16 and YF-17 respectively. Although it was originally nothing more than a technology demonstration trial, with no plans for formal adoption, the later influence of the High-Low Mix concept promoted it to a full combat craft development program.

	Japan: Military Service Law, Conscription Reintroduced In response to the casualty rates of the front lines in Europe and Asia, the Imperial Diet decides to reorganize and reinforce its military. As a result, the Military Service Law, absolved since the end of the Pacific War, is reintroduced, leading to the revival of conscription. Under this revised system, male citizens over the age of 20 and under the age of 40 are required to perform national service.
1981	**BETA: Invasion of Scandinavia, Construction of Rovaniemi Hive H:08** A group of BETA that had infiltrated the Scandinavian Peninsula construct a hive in Finnish territory, at Rovaniemi.
	Japan: Deployment of the A-6J Combat deployment begins for the A-6J Wadatsumi, an IJF specification A-6, which had been produced under license by Mitsuhishi and Kawazaki. It is deployed alongside submerged TSF carriers, primarily to IJF bases in the western and coastal regions of Japan.
	UN: Progress on SHADOW The L1 nuclear deployment platform 'SpaceONE' is completed. It is an integrated system that conducts early stage attacks on all objects that have the possibility of entering an orbital path towards Earth, in order to shift their orbital trajectory and prevent them from landing.
	France: Deployment of the Mirage 2000 The Mirage 2000 is a 1.5th-generation craft that was the result of Dass Ault's independent improvements of the Mirage III using knowledge gained from its development. Through a 15% enlargement of the frame compared to the F-5F, it would feature an increased armament load capacity, and a longer operational time. It was later upgraded to a 2nd-generation craft.
	US: ATDP Project Commences The US Department of Defense Advanced Research Projects Agency (DARPA), the Army, and NASA launch the Advanced Technology Development Program to explore and establish technology for 3rd-generation TSFs. The experimental craft X-29 was created from recycled parts to lower the cost and help speed up the project.
1982	**US: Congress Approves the Lease of Alaska to the Soviet Union** The lease of Alaska to the Soviet Union for 50 years is approved by Congress. Local residents begin to relocate away while the Soviet Union prepares for its own relocation. As a military assurance measure, the US also leases Yukon Base, on the American/Soviet border, and surrounding territory to the UN for 50 years at no cost.
	Japan: Deployment of the Type 82 (F-4J Kai) The long awaited Royal Guard exclusive specification craft F-4J Kai Zuikaku is deployed. The 1.5th-generation craft, ordered by the Shogunate, was produced by Fugaku, Mitsuhishi, and Kawazaki, using knowledge gained from the Akebono Program. The technological advances made from producing this craft become the base for future domestic TSF production.
	Japan: Domestic Next-Generation TSF R&D Organization Created The public and private sectors begin collaborating on integrated research of a domestic next-generation TSF, in response to the setbacks in developing the Type 82 and in order to close the technological gap with America.
	US: Deployment of the F-14 Grunnan develops the world's first 2nd-generation TSF. Despite being a large-scale craft designed for high speed strikes with the use of the AIM-54 Phoenix long-range missile system, it was more than capable of close quarters dogfighting. It is deployed to the navy to be housed in the Nimitz-class nuclear TSF carrier.
1983	**US: ATSF Project** The US begins a next-generation development project, which anticipated the need for anti-human TSF strategies after the war with the BETA.
	Europe: EU Relocates Headquarters to London Ever since the westwards progression of the BETA from the Kashgar Hive, Western Europe was the main battlefield against the BETA. As a temporary measure, while awaiting completion of the new headquarters in Belfast, the functions of the headquarters were transferred from Brussels to London.
	Japan: Youkou Project Shocked by the contents of the ATSF Project, Japan's domestic TSF research organization changes their objective to 3rd-generation TSF development. It was recommenced as the Youkou Project.
	USSR: Deployment of the MiG-27 The MiG-27 is a strengthened version of the MiG-23, but was already obsolete at the time of its deployment. However, as an alternate mainline craft to the MiG-21, it would continue to support the Soviet Armed Forces for many years to come.
1984	**BETA: Construction of the Anbar Hive H:09** The BETA construct a hive in Iraqi territory in the province of Anbar. The Middle Eastern front is forced to make a significant retreat, and the deficiency of oil resources worsened as a result.
	BETA: Construction of the Noginsk Hive H:10 The BETA construct a hive in Soviet territory at Noginsk.
	BETA: Southwards Movement A new group of BETA from Kashgar move southwards, detour around the Himalayas, and infiltrate the Indian subcontinent. Using the Himalayas as a shield, the armies of the Indian subcontinent, under close cooperation with Southeast Asia, halt the BETA's progression for approximately ten years before being overcome by numbers and retreating. They would then relocate their coalition headquarters to Sri Lanka before continuing their defense.
	USSR: MFPTI Project In order to recover from the failures of the MiG-23/27, the Soviet Union begins the МФПТИ Project (MFPTI; Multifunctional Frontline TSF Project) in opposition to the US ATSF Project.
	Japan: Research into Non-Carbon Based Pseudo-Lifeforms Upon close inspection of the data from past Alternative Plans, Professor Kiriyama of the Imperial University writes a thesis, with the hypothesis that "to the BETA, which show stronger reactions to computers than people, communication by carbon-based lifeforms is impossible". The Imperial government, feeling threatened by the European countries' retreat, decides to bid for leadership of the next Alternative Project, as a means of having the UN remain in Japan to bolster defenses. Kiriyama's thesis and hypothesis are made top secret, and research into non-carbon based pseudolifeforms commences, backed by government funding.
	US: Deployment of the F-15C Deployment commences for the F-15C Eagle, developed by McDaell Doglam as an update to the F-4. It becomes adopted in countries across the world as a general purpose 2nd-generation TSF that boasts high anti-BETA capabilities for both long and close-range combat.
	UN: SHADOW Becomes Operational ARTMISS, a final defense line of nuclear attacks in Earth's orbit is completed. It is used to respond to situations where SpaceONE was not able to change the orbital trajectory of a target.

1985	**BETA: Construction of the Budapest Hive H:11** The BETA construct a hive in Hungarian territory at Budapest. Their invasion at the European front gains more momentum.
	Japan: Economic Agreement with Oceanic Nations Realizing that a BETA invasion of the mainland was inevitable, Japan begins to focus on establishing foreign production bases of domestic primary, heavy, and manufacturing industries. They enter an economic agreement with countries in the Pacific region, such as New Zealand and Australia, and construct industrial plants in each country one after the other.
	USSR: Relocation of National Functions to Alaska Completed Having begun in 1982, the Soviet Union Communist Party government's major state functions finish relocating to Alaska. The evacuation also consisted of military bases, followed by key industries, production plants, and citizenry. Losing a majority of its territory to the BETA's northward advances, the Soviet Union continued their battle to reclaim territory, treating the Far East of Russia across the Bering Sea as their absolute defense line.
	UN: Relocation of the Third Project's Headquarters to Alaska The headquarters for Alternative 3 are moved to Talkeetna, Alaska.
	Europe: West Germany and France Fall, Defence of the British Mainland Commences Against an onslaught of BETA, West Germany and France fall, one after the other. Britain prepares to defend its mainland.
	Japan: Japanese and British War Industries Representatives Meet Secret meetings between military delegations from Japan and the UK are held frequently.
1986	**BETA: Construction of the Lyon Hive H:12** The BETA construct a hive in French territory at Lyon. Following the invasion of the British Isles, the invasion of the Iberian Peninsula commences.
	France: Withdrawal from the European TSF Program France, West Germany, and the UK come into disagreements over which engine to use for the ECSTF project. As a result, France withdraws.
	US: Deployment of the F-16 After developing the 'High-Low Mix Initiative' as a countermeasure against the rising costs of the F-14 and F-15 models, the US Government promotes the LWTSF (Light-Weight Tactical Surface Fighter) Project from its original intent as a technological research program, into one for the development of a combat craft. Under this project, General Dynomics develops the F-16, a 2nd-generation TSF. It is adopted across many nations as a lightweight successor to the F-5E.
	Asia: The Third United Front is Formed Having been pressured since the beginning of hostilities with the BETA, the PRC signs a treaty for a united anti-BETA front with Taiwan, swearing to fight alongside each other as the Third United Front (TUF). Together, they would become the central force of the East Asian front.
	Japan: Formation of the IJMDF Seeing the front line approach the mainland, the Imperial Force forms the Mainland Defense Force as a specialized domestic deployment unit under the direct control of the IJF General Staff Office. The military organizations are restructured with the strategic goal of defending the country at all costs.
	Japan: Joint Exercises with the US for the Next-Generation Mainline TSF In preparation for the selection of the Japanese Empire's next mainline TSF, a dissimilar combat training exercise is conducted with the US at the Yausubetsu Training Grounds. During the exercise, Captain Iwaya of the Royal Guard achieves a victory over the F-15 with the F-4J Kai.
	West Germany: Withdrawal from the ECSTF Program, Hints at Purchasing the F-15 Losing faith in the ECTSF Program due to long delays, West Germany hints at their withdrawal. They respond to the sales promotion of the F-15 and F-16 by the US and start considering importing the F-15.
	Sweden: Deployment of the JA-37 Building upon the J-35, SAAG develops the 2nd-generation TSF, JA-37, and begins to deploy it in combat.
1987	**Europe: Governments Relocate to Britain and Greenland** Having held out in Portugal while assisting the evacuation of refugees, many European governments are forced by the full westwards advance of BETA forces to relocate their state functions to areas such as Britain, Greenland, and Canada. Militaries of nations that had lost their territory in Europe become incorporated into the UN Forces.
	UN: Inclusion of Japan and Australia into Permanent Members of the Security Council With the decline in power for the previous permanent members of China, the Soviet Union, and France, the UN instates Japan and Australia as new permanent members through a Security Council Resolution. Japan is seen as highly influential in military, economy, and technology whereas Australia's influence is derived from its highly sustainable food supply. This increases the number of permanent members to seven, but the vetoing powers of the two new members are frozen for 20 years.
	US: Successful Detonation of the G-Bomb A small-scale detonation of the G-Bomb, conducted in White Sands, New Mexico, as part of the Morpheus Test, is successful.
	US: Discontinuation of the HI-MAERF Project The Pentagon decides to halt the HI-MAERF project. Although this is somewhat due to delays in the project caused by technological problems, it was mainly due to the shift in US strategy towards one centered around the G-Bomb, which had shown prospects for practical use. The trial craft developed during the program becomes mothballed.
	Japan: Dredging of the Lake Biwa Canal Commences Japan begins dredging work for the redevelopment of the Lake Biwa Canal, after being requested for support by the UN, due to the deteriorating conditions on the Indian subcontinent. The project aims to enlarge the canal connecting Lake Biwa, Osaka Bay, Ise Bay, and Tsuruga Bay to a size large enough for Kii-class battleships and 300,000 metric ton class tankers to pass through. By 1998, when the BETA commenced their invasion of the mainland, the construction of the Ise Bay side had not been completed, but it had allowed for the deployment of the US 7th Fleet Carrier Theodore Roosevelt to Lake Biwa, and assisted in the transportation of forces during Operation 21st.
	UK: ECTSF Program Shifts to 3rd-Generation Standards Following the withdrawal of France and the fall of the European continent, the UK, now practically the sole developer of the ECTSF Program, decides to make significant changes to the program's TSF by converting it into a 3rd-generation craft that focuses on mobile close quarters dogfighting capabilities.
	US: Deployment of the F-18 Having been defeated in the LWTSF Project by the YF-16 (F-16), Northrock develops their YF-17 into the F-18, a medium sized 2nd-generation TSF. It commenced deployment after being formally adopted by the Navy.



TUF: Operation 9-6

The Chinese and Korean forces intercept a group of BETA invading Dalian, which were thought to have originated from the Kashgar Hive. However, the front line falls to overwhelming numbers of BETA.
The invasion of Dalian is stopped with the deployment of tactical nuclear weapons. Though technically a success, the strength of the forces was greatly reduced, significantly impacting the future of the Chinese front line.

	USSR: Deployment of the MiG-25 Mikoyam Guluvich develops the MiG-25, a large-sized craft specializing in hive capture missions. Until the introduction of the Su-27 and the MiG-29, the MiG-25 remained the mainline craft of the Soviet Armed Forces, alongside the MiG-27.
1988	**Japan: Complete Revision of the Fundamental Law of Education** Following the partial revision in 1979, the Fundamental Law of Education is completely revised in response to the intensified conditions of Eurasia. Some compulsory subjects are abandoned, and schools and universities are reorganized.
	US: Presentation of the Next Stage Alternative Project to the UN Having lost faith in Alternative 3 because of its stagnation, the US presents their anti-BETA strategy to the Security Council, without waiting for the summons for the next Alternative Plan. This strategy involved utilizing the G-Bomb they had been researching. Their plan sought to capture the outer hives with a focused deployment of G-Bombs. More G-elements could then be captured, allowing for the continual mass-production of G-Bombs for saturation attacks on successive hives, which would eventually wipe out all central Eurasian hives, including the Original Hive. The UN would do nothing more than inspect the contents of their proposal, with the reason that Alternative 3 was still in progress.
	UN: Triad Exercises The UN Space Force and the US Strategic Orbital Force conduct a joint experiment, testing the criteria by which Laser classes perform interceptions, by dropping various materials. It was found that regardless of the loaded item, only the Heavy Laser classes near the predicted landing point would intercept it. Those beyond a certain distance would not react at all. Although the details behind this principle are unknown, it resulted in the accelerated deployment of HSSTs and low orbit satellites.
1989	**UN: US Proposal Declined** The proposal presented by the US the prior year is not adopted. The main reasons behind the decision are that the UN and US differed in their reception to the progress of Alternative 3, as well as the fierce opposition from Eurasian countries against the use of the G-Bomb, which has unpredictable effects. In reaction, the US loses even more hope in the UN, and resolves to enforce their own independent anti-BETA strategy. Afterwards, the US begins to blatantly lobby UN member states, and the rejected proposal becomes more extreme, eventually developing into Alternative 5.
	UN: First Interception Conducted by SHADOW SHADOW is deployed for the first time against what is thought to be a BETA landing unit launched from the Moon. It successfully diverts the unit from its orbital path. However, there was debate over whether or not this object was in fact a landing unit.
	Middle East: Intensifying of Combat in the Arabian Peninsula While continuing to invade Europe and the Indian subcontinent, the group of BETA from Eurasia began to spread their forces into the African continent. In response, the Middle Eastern countries conduct a defensive battle, with the Suez Canal as the final defense line. The conditions in the Arabian Peninsula gradually worsen.
	Japan: Deployment of the F-15J Fugaku, Mitsuhishi, and Kawazaki develop the Imperial Force specification F-15J Kagerou, a licensed production of the F-15 Eagle, and it begins deployment. Originally, only 12 craft were purchased to help break the stagnation of domestic TSF development, but 188 craft were later added to the order. The knowledge gained while developing the F-15J paved the way for a domestically produced 3rd-generation TSF.
1990	**BETA: Construction of the Bhopal Hive H:13** The BETA construct a hive in Indian territory at Bhopal. After the retreat from Europe, much emphasis was placed on the Indian subcontinent, in preparation of capturing the Kashgar Hive. Mankind engages in a stance of thorough resistance in the region.
	TUF: BETA Advance East A large-scale BETA group appearing from the Kashgar Hive begins to move east. Northeastern Eurasia, East Asia, and Southeast Asia become the main battlefields. Although the Third United Front, the Soviet Union, and various Southeast Asian countries engaged in intense defensive efforts, they were overcome by numbers, and gradually pushed back their front line.
	US: ATSF Project Completed, YF-22 Selected The development race between Lockweed's YF-22 and Northrock's YF-23 ends with the former being chosen to be the next-generation mainline TSF for the US Armed Forces. This outcome was due to the YF-22's lower cost and higher compatibility with US military doctrine. After being put through trials for a year, it was formally adopted and given the official designation of F-22A.

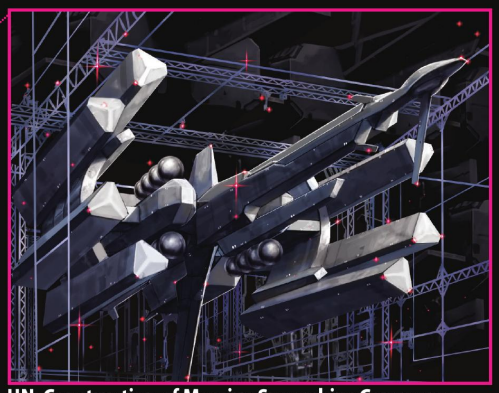
	USSR: Deployment of the MiG-31 Deployment of Mikoyam Guluvich's MiG-31—a second-generation, strengthened version of the MiG-25—commences.
1991	**Japan: Imperial Diet Deploys Continental Expeditionary Force** Deeming the eastward advances of BETA as a threat to the country, Japan sends a large force, centered around TSFs, to the East Asian front. Despite suffering many losses, they gave it their all to resist, but the front line continued to fall back.
	US: G-Bomb Reaches Practical Use The detonation trial of the fifth-dimensional effect bomb (G-Bomb) succeeds, and development shifts to its practicalization. The US government decides on using all secured Gray-Eleven exclusively for the manufacturing of G-Bombs.
	Kouzuki Yuuko: Admission to the Imperial University's Quantum Physics Laboratory Her paper on causality quantum theory catches the eye of the Alternative Program bid committee. As a result, she is given a place in the Imperial University's Applied Quantum Physics Lab, which was conducting research for the next Alternative Project, at the young age of 17. Alongside Professor Kiriyama, she later engages in research on quantifying personalities and parallel processing, which become the base of 00 Unit.
	US: DRTSF Program With difficulties in manufacturing the F-22 and the resulting shortages, the US begins a program to modernize and upgrade existing units to fill military needs until the next-generation mainline craft is deployed. McDaell Doglam and General Dynomics respond to the program and recommend the F-15E and F-16XL respectively. The F-15E, which excels in its armament loading capacity, extensibility, and procurement cost, would then be formally adopted.
1992	**BETA: Construction of the Dunhuang Hive H:14 and Krasnoyarsk Hive H:15** The BETA construct hives in Chinese territory at Dunhuang and in Soviet territory at Krasnoyarsk. East Asia's sense of impending danger heightens with this incredibly sudden eastern advance by the BETA.
	India: Operation Swaraj Under UN command, Operation Swaraj commences with a coalition made up of forces from the African Union and Southeast Asia, to capture the Bhopal Hive and regain territory in the Indian subcontinent. Space power is used for the first time in combat, establishing tactics for future hive capturing strategies such as orbital bombardments and orbital drops. Alternative 3's A-01 Special Reconnaissance Unit is deployed and infiltrates the hive to conduct readings, but are wiped out almost entirely, with no results to show. Over the next several months, many small-scale hive infiltrations for reconnaissance are conducted alongside culls, resulting in many sacrifices.
	Japan: Asuka Program The Shogunate jumps onto the bandwagon of the Defense Ministry's Youkou Program and commences a program to develop a next-generation successor of the Zuikaku to become the mainline craft of the Royal Guard.
	USSR: Deployment of the Su-27 Sufoni finishes development of their Su-27, a 2nd-generation craft based on the F-14's technical data, which had been supplied to them by Grunnan. However, its first incarnation was riddled with many issues and became unpopular among Surface Pilots. Its production is terminated early with the introduction of the Su-37, an upgraded version.
1993	**BETA: Total Control Over Europe** Fighting until the last moment, the North European front is finally dissolved. The EU Army headquarters announces the withdrawal of all forces, and the abandonment of Europe. European nations establish forward bases on coastal islands off of the continent and continue culling operations, in preparation for the eventual campaign to retake Eurasia.
	BETA: Construction of Chongqing Hive H:16 BETA construct a hive in Chinese territory at Chongqing. A large city on the same scale as Chengdu, it was a vital point for the Third United Front and the Imperial Japanese Continental Expeditionary Force, both of which were based there. They were forced to abandon it in response to ferocious BETA attacks.
	TUF: Operation 9-6 A Chinese-Korean coalition force intercepts a large group of BETA invading Dalian. The IJF's Continental Expeditionary Force are deployed as indirect support. However, the IJF were ambushed by the BETA, and two battalions were destroyed.

1992 Jinguuji Marimo enrolls into the Imperial Force TSF Preliminary Training Academy.

1994	**BETA: Occupation of the Indian Subcontinent** Having advanced south, the BETA manage to completely suppress the Indian subcontinent. The group of BETA advancing east gains further momentum, and the Chinese front becomes more intense. The militaries of countries that had lost territory due to this become incorporated into the UN Force.
	Japan: Lowering the Age of Conscription The Imperial Diet amends the Military Service law to lower the eligible age of conscription, and it is implemented immediately. It specifically allows the deployment of student volunteer troops to rear guard missions. As the war drags on for longer, the age of soldiers would steadily decrease.
	UN: Summons for the Alternative 4 Contingency Plan Realizing that Alternative 3 had stagnated, the UN announces a summons to prepare for the next plan. Japan, Canada, and Australia announce their bids for candidacy to host the 4th Plan. These nations begin preparing personnel and facilities, in order to strengthen their international presence through becoming the leader of the next plan.
	Bid Race Becomes a Political Problem Among Security Council's Permanent Members A political standoff occurs between three factions over the potential hosts for Alternative 4. The Soviets and Chinese feared that Japan hosting Alternative 4 would indirectly make the US more powerful. The UK put its support behind its two commonwealth states, Canada and Australia. Finally, the US wanted to push their own agenda by having Japan win the bid.
February	**Japan: Deployment of the Type 94** Having gained experience from developing licensed productions of the Type 89 Kagerou, Fugaku, Mitsuhishi, and Kawazaki's long-awaited purely domestically produced craft finally reaches combat deployment. Despite boasting high specifications as the world's first 3rd-generation TSF, the design of the Type 94 Shiranui left no space for expansion, which would cause trouble in future refurbishment projects.
	UK: ECTSF Demonstration Craft Completed The UK, which had continued the troubled ECTSF Program on its own, transfers the completed trial craft, the ESFP, from the British Aerospace Corporation to Euro Fightas and conducts a combat test, hoping to prevent the remaining nations from withdrawing from the program. Following this, forces operating the ESFP, which were dispatched to the UN's European Forces, would engage in combat on the European front, while receiving support from the British government.
	US: Deployment of the F-18E/F An upgrade over the F-18, the F-18E/F boasts high overall specifications. The completion and ensuing deployment of these craft, which boasted high cost-effectiveness, would drive the F-14, which had held the position of being the Navy's mainline craft, into retirement.
	TUF: Deployment of the J-10 Having been developed in secret between Changdu and Israeli manufacturers IEI, the Jian-10, a 2nd-generation craft based on the F-16C is deployed. It becomes the most successful derivative of the F-16.
	USSR: Deployment of the MiG-29 Mikoyam Guluvich's MiG-29 is a high-specification TSF, which could be called the culmination of Soviet 2nd-generation craft. Although its mobility and close quarters dogfighting abilities were pushed to the limits, it did not see domestic procurement. It was instead deployed overseas.
1995	**BETA: Construction of the Mandalay Hive H:17** BETA construct a hive in Burmese territory at Mandalay. With the BETA invasion of Southeast Asia becoming imminent, the UN and Southeast Asian countries establish a defense line on the Malaysian Peninsula, which would treat the Kula Gulf as the final defense line.
	UN: Adoption of Japan's Proposal for Alternative 4 Although Alternative 3 had made the important discovery that the BETA do not recognize humans as lifeforms, the UN determined that no more significant progress could be expected. They adopt the research of Professor Kouzuki of the Imperial University as the basis of the next plan. The proposal is promoted to the 4th Plan immediately and requisitions all results from previous Alternative plans. Professor Kouzuki is appointed as the director of the project. As the proposal was adopted immediately and without preparation time, construction of a headquarters facility was not yet complete, so a temporary headquarters was established in the Imperial University's Applied Quantum Physics Facility. One of the UN's motivations for suddenly shifting to the 4th Plan was their opposition to the aggressive lobbying of the US for the revival of their own proposal.
	Japan: Development of 00 Unit Commences As the director of the 4th Plan, Professor Kouzuki, alongside Professor Kiriyama, commence the development of the non-carbon based pseudo lifeform '00 Unit', which would be cornerstone of the 4th Plan. The 207th Surface Pilot Training Academy is established at the IJA (Imperial Japanese Army) Hakuryou Base, which was requisitioned by Alternative 4. Despite its cover as a regular training academy, it is actually a candidate selection pool for 00 Unit.
	Japan: IJF Opens Facilities to the UN In accordance to Japan's planning, the UN Far East Force stations itself on the mainland after Japan wins the bid to host Alternative 4. Japan opens up not only Hakuryou Base, but also facilities in various locations including Kadena, Iwakuni, Misawa, and Chitose to the UN Pacific 11th Force. Japan was eager to show their absolute support for Alternative 4.
	UN: Blue Book Program The UN commences a global-scale, secret program. It was not a program to oppose the Alternative Program, rather, it would partially cooperate with it.
	Japan: Enforcement of the Revised Military Service Act A revision of the Military Service Act, making unmarried women over the age of 18 eligible for conscription, comes into full effect. The law is amended to include women into conscription in order to bolster the military force.
	USSR: Polnoye Zatmeniye Plan The Soviet Union begin developing their own anti-BETA program with the goal of retaking its territory. Though it appears to involve extremely small-scale research, the truth behind remains a mystery.
	UN: Global Population at 50% of that Before the Great BETA War The UN Statistics Division announces that as a result of 30 years of fighting, the global population had fallen to approximately half of what it was before the BETA invasion. When compared to the 30% loss of population a year after the initial invasion, the current numbers could be interpreted as the successes of TSF resistance.
	US: Pressuring of the UN to Revive Alternative 5 Upon news of Japan's successful bid at hosting Alternative 4, the US continued to pressure the UN by threatening to withdraw all US troops from the orbital defense network and from the low orbit fleet. The goal of the US was for their own anti-BETA strategy to become the next backup plan, before quickly ending the under-prepared 4th Plan so that theirs could succeed it.

1996 Isumi Michiru enrolls into the Imperial Force Special Training Academy

	US: Deployment of the F-15E Considered the strongest 2nd-generation craft, the F-15E Strike Eagle, an upgrade of the F-15C, is deployed, and will continue to see use in the front line even after TSF development shifts to the 3rd generation.
	Japan: Integration of Yashiro Kasumi into Alternative 4 Yashiro Kasumi, a 6th-generation esper nurtured near the end of the 3rd Plan, is adopted into the 4th Plan, like all other 3rd Plan achievements. Her powerful reading ability would later contribute greatly to the progress of Alternative 4.
	BETA: Soldier Class Confirmed as New Strain An unidentified specimen, the smallest so far, becomes classified as the 'Soldier' class.
1996	**BETA: Construction of the Ulaanbaatar Hive H:18** BETA construct a hive in Mongolian territory at Ulaanbaatar. With invasions from Siberia, and across China, the situation of the Far East deteriorated with each passing day.
	Asia: Relocations to the Pacific Several Asian countries, which had lost their territory as the front line fell back, request assistance from Australia and other Oceanic countries in relocating their state functions. Countries which still held onto parts of their territory, such as Malaysia, Singapore, and Vietnam continue to resist.
	Southeast Asia: COSEAN Established Many Southeast Asian countries that had lost their territory decide to indirectly cooperate with the UN by forming the Coalition Of Southeast Asian Nations. Distrust stemming from the forced participation in 1992's Operation Swaraj, which had Alternative 3's goals in mind, pushes COSEAN away from being incorporated into the UN Forces.
	Sudden Expansion of Christian Fundamentalism Armed right-wing Christian Fundamentalists, swearing fealty to God, begin to interpret the BETA as 'a trial sent by God'. They also promote the ideology that if human extinction is God's will, resisting it would undermine their beliefs. It rapidly spread to youths in refugee camps, unhappy with the UN's measures. They would demonstrate and protest often and in many locations.
	UN: Summons for Alternative 5 as a Contingency Plan As insurance against the absurd contents of the Japanese proposal, and against the unease regarding the UN's aggressive promotion of the 4th Plan, America proposes a summons for the 5th Contingency Plan. It proceeds, with support from South America and Africa. Immediately afterwards, Kajiura, Japan's ambassador to the UN, expressed his disgust about how America used Japan's proposal to advance its own agenda.
	UN: Project Prominence Eurasian nations protested against Alternative 5, claiming that it was nothing more than a re-branding of the previous G-Bomb plans put forth by the US. Furthermore, the UN Forces Headquarters concluded that the 4th Plan was little more than an absurd fantasy, and raised a counter-proposal of a UN-led advanced TSF technology development project. The UN Forces Yukon Base in Alaska is designated as the headquarters, and work to expand the facility is conducted.
	Europe: Channel Islands Base Transfers to the European Union The Channel Islands Base Complex, which was under British jurisdiction, is transferred to the EU, before being renamed to 'Fort Mont Saint Michel'. The fortress is designated as highly important by the UN and EU due to its heritage status, as well as being an outpost for the re-taking of the European continent.
	Japan: Enforcement of the Amended Military Service Act The Imperial Diet passes a bill to lower the age of conscription for males even further. With this amendment, Japan was moving towards the full mobilization of students.
	TUF: Deployment of the J-11 Deployment begins for the Jian-11 (Su-27SK), a licensed production of the Soviet Su-27 developed by Shenyang and IDSF.
	Sweden: Deployment of the JAS-39 The JAS-39 is a lightweight expansion of the JA-37 developed by SAAG, and is the first 3rd-generation combat TSF to have reached practical use in Europe.
1997	**BETA: Construction of the Blagoveshchensk Hive H:19 and the Cheorwon Hive H:20** The BETA construct hives in Soviet territory at Blagoveshchensk and in Korean territory at Cheorwon. Although the Korean Peninsula was seen as an important area for the Far East defense, the lessons learned in Europe were not put into effect, and the reconstruction of the defense line was delayed as a result of problems regarding refugees. This would allow the BETA to trample over their defenses.
	BETA: Arabian Peninsula Suppressed After holding out for 10 years, the Arabian Peninsula finally falls, and the BETA reach the Red Sea. The African Coalition Force and the Middle East Coalition Force cross the Suez Canal to reconstruct a front line. They narrowly prevent an invasion of the African continent.
	US, Europe: Success of the Daedalus Project Upon receiving a data transmission from Icarus I, the Daedalus Project ends in success. A rough data analysis determines that an extrasolar planet of AA habitability exists in the Ophiuchus constellation of the Barnard Star System. Although detailed data analyses would require several months, the US integrates this finding into their own alternative program to include the colonization of the extrasolar planet. They would then submit the revised proposal, which seemed to appease the issues that the Eurasian nations had with it. Because the timing of the results is suspiciously convenient, allegations are made that the results were forged.
	UN: US Proposal Accepted as the Next Contingency Plan Upon receiving the revised proposal, the UN adopts the US proposal as the Alternative 5 contingency plan. No countries other than the US were potential candidates.



UN: Construction of Massive Spaceships Commence

The large spaceship being constructed at the Lagrange point. It is believed that construction commenced under pressure from a revised proposal of the American Project. However, America's suspicious preparedness for construction brought up much speculation about their agenda.

	UN: Construction of Massive Spaceships Commence Under US Pressure, the UN begins construction of several dozen massive spaceships, at a Lagrange point. With two Alternative Plans being developed simultaneously, the world is split ideologically between them, with the Pacific, Eurasia, and Canada opposing the 5th, while the pro-American countries in Africa and South America support it.
	UN: Special Task Force A-01 Established Under Alternative 4 A-01 is the generic designation given to special task forces belonging to the Alternative Program. Alternative 4's consists of personnel from the 207th Surface Pilot Training Academy. The unit conducts missions only related to Alternative 4, and is completely independent from normal UN Forces command chains. At Alternative 4's commencement, the task force's size was one regiment.
	Taiwan: Relocation of the Communist Party of China to Taiwan Having continually been pushed back by the BETA, the Communist Party of China government decides on a temporary withdrawal from the continent. The Taiwanese Presidential Office accepts the relocation of the Communist Party and Chinese state functions to its territory.
	Japan: Deployment of the Type 97 Advanced Training Craft During the development of the Type 94 Shiranui, an experimental craft was created to research 3rd-generation technology. The Type 97 Fubuki is a 3rd-generation advanced training craft, which has been re-designed from this experimental craft to allow for for mass production. Since it also has combat capabilities, it would later be considered as a candidate to replace the Gekishin, which was reaching the end of its lifespan.
	USSR: Deployment of the Su-37 Frustrated by the low operational uptime of the Su-27, the Soviet Union focuses on the high capabilities of the Su-27M2, a 3rd-generation technology verification craft produced independently by Sufoni. This craft was hastily designated as the Su-37 and formally adopted.
1998 January	**Asia: Operation Gwangju** Operation Gwangju was conducted by the IJF and the Third United Front to assist in the withdrawal of UN and COSEAN forces from the east side of the Korean Peninsula. Here, the Lieutenant General Ayamine Incident, which comes to be known as 'The Tragedy of Operation Gwangju' occurs. Lieutenant General Ayamine Shukaku, in command of the Imperial Continental Expeditionary Force, decided to cooperate with COSEAN forces, which had prioritized aiding locals who were refusing to evacuate. This resulted in the collapse of the UN Forces headquarters, and caused significant confusion within the chain of command, which led to huge UN Forces casualties. Following the operation, the UN Forces requested for the Lieutenant General to be handed over to the international military tribunal. Prime Minister Sakaki Korechika was in a difficult position. If he allowed the tribunal, backlash from the military was inevitable, but if he refused it, Alternative 4 would be stalled. Prime Minister Sakaki appealed to the UN by holding the political stability of the frontline nations hostage, and was able to negotiate for the Lieutenant General to be harshly punished by domestic law. Prior to the decision, Prime Minister Sakaki pleaded with to Lieutenant General Ayamine to consider the future of Japan, and the Lieutenant General willingly accepted his own martyrdom. Though Lieutenant General Ayamine's nobility brought Prime Minister Sakaki to tears, the charge of desertion would plant the seed for future conflicts with the UN, like the 12-5 Incident.
July	**BETA: Invasion of Japan Begins** A large group of BETA lands on the coast of Kyushu. The Western Mainland Defense Division is destroyed, trapped in a pincer attack by the BETA from Kyushu, and another group that had landed across the Sea of Japan's at Chugoku. Approximately a week after landing, the BETA controlled the Kyushu and Chugoku regions. Forces at Shikoku, which were only intended for indirect support, were unable to destroy major bridges fast enough to stop the invasion force. The invasion occurred during a supertyphoon, which resulted from the BETA's alterations to the environment on the continent. This made it impossible for naval power to be deployed, and was a significant contributing factor to this terrible defeat.
	Japan: The Defense of Kyoto With western Japan falling within a mere week of the BETA landing, the IJF, USFJ, and the UN Forces rally together to stop the invasion of the Chubu region, with a defense line established at Kyoto. Fierce fighting breaks out, lasting nearly a month.
	BETA: Construction of the Sadogashima Hive H:21 After invading Hokuriku and suppressing Kyoto, the BETA return to Sadogashima and construct a hive (H:21, Target 21). 250 Million people are evacuated from the Kinki and Toukai regions. By this point time, 36 million lives, about 30% of Japan's population, were lost.
	US: Further Pressure to Adopt Alternative 5 The analysis of the data sent by Icarus I is completed. The extrasolar planet is found to have AA habitability. That is, its environment surpasses the habitability of Earth. The US strongly urges the UN to promptly shift to Alternative 5. They sought to gain official funding by having their plan promoted. Furthermore, by quickly resolving the war via the deployment of G-Bombs, and by gaining the initiative of the counter-offensive, they sought to monopolize the G-elements procured in Eurasia. At the same time, NASA and ESA declare the Daedalus Project over, after a supposed communications blackout with Icarus I.
October	**Japan: Annulment of the Japan-US Security Treaty, Immediate Withdrawal of US Troops in Japan** Busy with the construction of the Sadogashima Hive, the BETA's invasion of the Nagano prefecture grows stagnant. At the same time, the US unilaterally annuls the Japan-US Security Treaty, and withdraws troops in Japan immediately. The US claims the annulment is due to the IJF's repeated disregard for orders. As the Imperial government was fiercely opposed to the use of G-Bombs and nuclear weapons, their view was that the US had used this as an excuse to avoid the death of its own personnel from the resulting close quarters combat. However, the UN and senior government officials recognized that the annulment of the security treaty and America's increasing pressure on the 5th plan were related.
	UN: Relocation of Alternative 4 Headquarters With the immediate risk of an invasion of Tokyo, the UN relocates the Alternative 4 Headquarters to Sendai. The 207th Surface Pilot Training Academy at Hakuryou Base is also relocated to Sendai, after a temporary relocation to the Nerima garrison.
	UN: Hakuryou Base Destroyed in a BETA Attack on West Kanto After finishing the construction of the Sadogashima Hive, the BETA recommence their eastwards advance. The Imperial Mainland Defense Force withdraws to the defense line drawn across Shizuoka, Yamanashi, and Saitama, where they prepare to engage the BETA. However, the BETA advance suddenly changes direction away from the Imperial Capital, even after suppressing an area from Toukai to West Kanto. After advancing south, down the Izu Peninsula, the invasion grinds to stagnation once again. Later, a BETA division suppresses Yokohama, and the IJF's Hakuryou Base is destroyed. Meanwhile, the front at the Tama River had become a stalemate, with culling operations being conducted around the clock.
	BETA: Construction of the Yokohama Hive H:22 An observational satellite confirms the construction of a hive at Yokohama. Nothing could be done about it and the abnormal speed of its growth.
	Japan: State Functions to be Relocated to Sendai Following the suppression of West Kanto and the construction of the Yokohama Hive, the Japanese state functions are moved from the First Imperial Capital, Tokyo, to the Second Imperial Capital, Sendai.
	Kouzuki Yuuko: Proposal to Capture the Yokohama Hive Kouzuki Yuuko declares that the only way to reverse Japan's declining political power is through rapid advances in Alternative 4, specifically by capturing the Yokohama Hive and the G-elements. Having learned from Sadogashima, the IJF agreed with this, thinking to strike at the hive while it was still new. Japan would then lobby the UN for an operation to capture the hive. Conservative elements in the UN immediately accept Professor Kouzuki's proposal, as the final hope of blocking the pressure of the US to adopt the 5th Plan. COSEAN was requested to assist, rather than the US Armed Forces, which were the main force of the UN, but they were unable to stop the US from interfering.
	Japan: Enforcement of an Amended Military Service Law Faced with the worst-case scenario of a mainland invasion, the Imperial Diet passes and immediately enforces a bill to lower the conscription age of women to 16.
	UN: Expansion of Yukon Base Completed An expansion of Yukon Base, on the US/Soviet border in Alaska, is completed. It would later function as a test base for Project Prominence.
	UK: Deployment of Pre-Production Craft of the EF-2000 The ECTSF Program was running smoothly since the completion of the ESFP demonstrator craft. A pre-production model of the EF-2000 is delivered to trial units.
	France: Deployment of the Rafale Having commenced independent TSF development after withdrawing from the ECTSF program, France begins deployment of its 3rd-generation TSF, the Rafale.
1999	**BETA: Construction of the Olyokminsk Hive H:23 and the Khatanga Hive H:24** BETA construct hives in Soviet territory at Olyokminsk and Khatanga. Demonstrations take place across the US in response to the BETA's eastward advance, as well as the invasion of Japan in the previous year. Protesters state that the BETA should be exterminated early in order to prevent another tragedy like Europe's.
August 5 - 9	**UN & Japan: Operation Lucifer** A large-scale counter-offensive, second only in size to Operation Palaiologos, commences. Its primary strategic goal is capturing the Yokohama Hive and reclaiming the island of Honshu. During the final stages of capturing the Yokohama Hive, after extensive naval cross-bombardment from the Sea of Japan and the Pacific Ocean, the US, who had been the rear guard of the operation deploy two G-Bombs, without notifying their allies. This destroys the monument of the hive, and eliminates all surrounding BETA, largely deciding the battle. UN and COSEAN tactical armored forces, supported by naval bombardments, chase down the remaining BETA, which had started retreating to the continent. They deal a significant blow to the BETA, and achieve a historic and decisive victory. However, the actions of the US only stirred up greater anti-US resentment in the Japanese population.
August 5 - 9	**UN: Deployment of A-01 in Operation Lucifer** A-01 is deployed with the mission to secure the G-element, and to restrain the US troops that were after the same goal.
	UN: Countries Debate the Threat of the G-Bomb Having witnessed the might of the G-Bomb first-hand in Operation Lucifer, Eurasian and African nations erupt in debate over their threat. In contrast, countries that had supported the American plan begin to advocate for their use even harder than before, now that the strength of the G-Bomb had been proven. On the other hand, the Soviet Union continue to act side by side with the EU by supporting Project Prominence, even as they pursue their own campaign to liberate their territory.
	Kouzuki Yuuko: Request for the Construction of Yokohama Base Professor Kouzuki requests for a UN Forces base to be constructed on the site of the Yokohama Hive. This request is immediately accepted by groups in the UN that felt threatened by the G-Bomb and America's own contingency plan. When construction commenced, the UN Forces Headquarters ordered US troops to withdraw immediately, and forbade them from looting the battlefields.
	Japan: Reconstruction of Western Defenses A preconceived plan to reorganize the defense structures for ex-BETA territory is immediately approved. Many COSEAN and UN troops are accepted as part of this plan.
October	**UN: Construction of Yokohama Base Commences** The construction of Yokohama Base begins. As the main goal of the base is to study the hive, structures of BETA origin are left as is.
	USSR: Deployment of the Su-47 Having continued the MFPTI Program by themselves, Sufoni develops a 3rd-generation upgrade over the Su-37. It is labeled as the ultimate close quarters combat TSF but its details have not been revealed.
	US: Phoenix Initiative Demonstrative tests of the F-15 ACTV are launched at Yukon base, as part of a low-cost update initiative for the F-15. This initiative would be conducted by Boening's TSF development division, as a bid for their survival.



Japan Deployment of the Type 00

A state-of-the-art TSF, held in high esteem by the Imperial Royal Guard. It boasts specifications surpassing those of all previous TSFs. From the craft's color and head shape, it can be identified as the Type-00C.

	US: Deployment of the A-12 The amphibious TSA, the A-12, using 3rd-generation TSF technology to achieve stealth capabilities and high maneuverability, becomes formally deployed.
2000	**BETA: Construction of the Verkhoyansk Hive H:25 and the Evensk Hive H:26** BETA construct hives in Soviet territory at Verkhoyansk and Evensk. Having continually been pushed back towards the Far East, the Soviet Armed Forces conducted a large scale counter-offensive with the UN Far East Force. With the support of the UN Far East Fleet and the IJN (Imperial Japanese Navy), the invasion of Kamchatka is successfully halted.
January	**UN: Alternative 4 Facilities of Yokohama Base Become Operational** Facilities for exclusive use by Alternative 4 are completed, with research functions being transferred from the Imperial University. The 207th Surface Pilot Training Academy was simultaneously transferred.
May	**Europe: Deployment of the EF-2000** The EF-2000 moves into full mass production and begins to be deployed in the British Army and in the UN European Region Forces. The UN Forces first deploys it to the West German Army 44th Tactical Armored Battalion, due to their high defensive strategic priority.
	US: Congress Begins to Debate the G-Bomb Threat A UN Fundamentalist Christian staff member exposes photographs and data of the G-Bomb hypocenter. Although US Congress had an overwhelming majority in support of the 5th Plan, critics fearing the use of G-Bombs started to spring up. Lockweed Mardin, having suffered setbacks in their TSF developments after the appearance of G-Bombs, began to appeal to some members of Congress to join an anti-5th Plan group. This group secretly tries to make contact with the leadership of Alternative 4.
2000	Kazama Touko joins the UN Forces

	UN: G-Bomb Threat Debate Develops into Anti-Alternative Ideology Movements questioning the Alternative plans themselves, which utilize G-elements and BETA-derived technology, begin to surface in opposition of the G-Bombs. These movements become a third force, against both the 4th and 5th Plans. They begin plotting the hasty capture of the Kashgar Hive, without waiting for the results from the Alternative Plans. Those in the anti-Alternative movement become staunch supporters of Project Prominence.
	Japan: XFJ Program Approved The Imperial Diet approves of a plan to upgrade the Type 94 Shiranui, hoping to learn America's modern TSF development techniques. With the end of the F-4's service life approaching, debates break out over the selection of the next-generation TSF that would be its replacement. The plan to conduct a collaborative development program with the US, as suggested by Iwaya Eiji, was accepted. Its true intentions were hidden, and it was proposed to the US as a program to assist in raising the standards of Japanese development techniques. Meanwhile, Boening, who had been requesting for the program's approval, were successful in gaining the support of the 5th plan opposition groups in the US through their active lobbying. As a result, the Japanese-US collaborative development succeeded in gaining congressional approval.
	Japan: Deployment of the Type 00 The Type 00 Takemikazuchi, a purely domestic 3rd-generation TSF developed by Fugaku and Onda, commences its combat deployment. It was ordered by the Shogunate as a successor to the Type 82, and the first mass-produced model was given to the Royal Guard as a domestic use TSF specializing in close quarters dogfighting.

2001	**UN: Yokohama Base Becomes Operational** Yokohama Base is fully opened, and begins operations as the headquarters for Alternative 4. Although construction was technically only 70% completed, all important facilities were 100% operational. Construction on unfinished areas continued.
	Kouzuki Yuuko: Contact Established with Alternative 4 Support Movement A group of American political and business representatives in support of Alternative 4 secretly make contact with Kouzuki Yuuko to discuss their future cooperation. Yoroi Sakon from the 2nd Division of the Imperial Ministry of Information and Foreign Affairs also contacts the Alternative 4 support faction in the UN.
	US: Deployment of the F-22A The US military commences deployment of the F-22A, hailed as the battlefield-dominating TSF. It is a TSF with anti-human combat capabilities, in anticipation of the global strategy after the Great BETA War's conclusion.
	Kouzuki Yuuko: Requisition Proposal of the HI-MAERF Project Submitted The leadership of Alternative 4 makes a formal request to the UN to requisition the HI-MAERF Project. US Congress narrowly approves of handing over all of the XG-series, and the immediate transfer of development staff and craft is approved by an executive order from the President.
	UN: Growth of Alternative Factions The requisitioning of the HI-MAERF project sparks further conflict in the US between supporters of the 4th and 5th Plans. Both sides campaign other UN member states in hopes of bolstering support.
	Japan: XFJ-P2 Prototype Completed The improved Type 94 Shiranui Second Phase 2, which is the achievement of the XFJ program, is rolled out. Operational trials of various types commence.
	BETA: Large Scale Invasion of Kamchatka A large group of BETA invade the Kamchatka Peninsula, on the eastern end of Soviet territory. The BETA manage to invade inland and destroy the forward base. A unit from Project Prominence, which had been deployed to the area for operational trials, is dragged into combat, but all craft manage to survive. Upon receiving information that Laser classes had landed for the first time, a re-evaluation of the Evensk Hive's phase begins.
	UN: Yukon Base Incident Yukon Base is temporarily occupied by armed terrorists as part of a conspiracy between the Christian Fundamentalists and the Refugee Liberation Front. After seizing the base's functions, the terrorists request the UN, Americans, and Soviets to give unconditional entry and suffrage to refugees. The terrorists oppose US air support bombers by releasing the BETA from the research facility, causing widespread devastation to the North American continent, which had been free of combat since the Athabasca Incident. The terrorists are subjugated by a UN/Soviet anti-terrorist special unit, which had infiltrated the facility. Units from Project Prominence, coming from various nations, assisted in the counter-attack.
November 11th	**Japan: BETA Invade Niigata** A group of BETA believed to have originated from the Sadogashima Hive land at Niigata. However, their landing would be successfully predicted and intercepted. Alternative 4 conducts a mission to capture the BETA with A-01. Although the mission ended in the capture of more BETA than any prior mission, it resulted in three casualties.
	UN: Demonstrative Trials of a Conceptual OS Trials commence of a breakthrough TSF OS, the XM3, developed by Alternative 4's R&D Division.

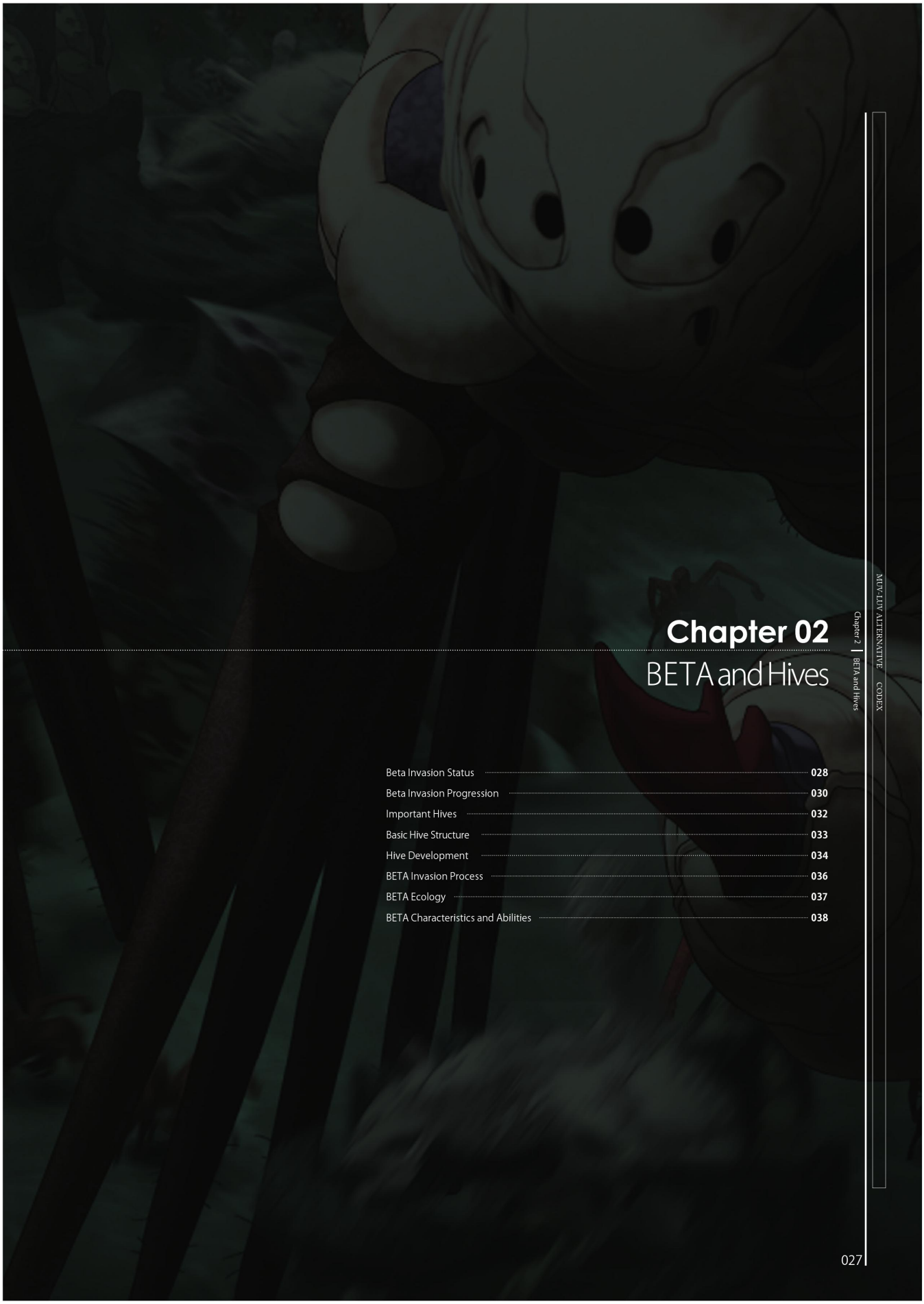
2001 Mitsurugi Meiya, Sakaki Chizuru, Ayamine Kei, Tamase Miki, Yoroi Mikoto, and Suzumiya Akane join the UN Forces.

December 5-6	**Japan: 12-5 Incident** Young commissioned officers, such as Sagiri Naoya, stage an attempted coup d'état. Several cabinet ministers and the Prime Minister are assassinated, and a civil war breaks out, starting with several skirmishes in the Imperial Capital. The UN Forces, consisting of mainly the US Armed Forces, is deployed to maintain the stability of the Far East Front Line. They engage in armed intervention, after receiving information of an uprising and a request for assistance from the Sendai provincial government. The situation quickly returns to normal following the execution of the coup's leader by the Royal Guard Lieutenant Tsukuyomi Mana. Immediately after, provisional government members resign en masse. Reforms are made to the overall power structure, as well as to the Shogun's supreme authority. Furthermore, relations improve between Alternative 4, and the IJF and government, given Alternative 4's contribution to the coup's resolution.
December 10	**UN: Yokohama Base Incident** An experimental sample of BETA from the Alternative 4 headquarters at Yokohama escapes, causing significant losses for the unarmed groups conducting XM3 trial exercises. As a result, many UN Forces generals and civil servants are recalled, and efforts were made to introduce stronger defense systems. Including Jinguuji Marimo, there are a total of three casualties from A-01 sent to eliminate the BETA.
	Kouzuki Yuuko: Completion of the Prototype 00 Unit The prototype model of the anti-BETA intelligence interface 00 Unit, with a quantified pseudo-personality and a non-carbon structure, is completed. Calibrations, generally referred to as 'tunings', are carried out.
December 25	**Japan: Operation 21st** The UN Forces and the Imperial Mainland Defense Force collaboratively undertake an operation to capture the Sadogashima Hive. The primary goal of the operation was for 00 Unit to collect information, though the operation also brought many of the factions' goals into alignment, such as the independent gathering of G-elements for Japan, and ridding the mainland of threats. Though the operation begins smoothly, it loses momentum against the numbers of BETA, which surpassed estimations. However, the XG-70, a hive-capturing weapon built by Alternative 4, self-destructs, and Sadogashima is erased. The operation ends in a tentative success. During this operation, 00 Unit successfully obtains data for all hives on Earth. The UN and the Empire of Japan suffer many losses in equipment and lives, including those of the commander of A-01, Captain Isumi Michiru, and Second Lieutenant Kashiwagi Haruko. All information related to Alternative 4 is kept as top secret.
December 29 - 30	**Japan: BETA Attack the Capital, Defense of Yokohama Base** A group of over 40,000 BETA from the Sadogashima Hive emerges in Machida, Tokyo via deep tunnels, and attacks Yokohama Base. Yokohama Base suffers significant losses, due to the invasion reaching its deepest parts. However, it narrowly avoids destruction after the hive reactor, which had been kept for research purposes, was deactivated by an explosion, prompting the BETA to withdraw. As a result of the attack, 00 Unit could no longer be maintained. This forced Professor Kouzuki to request the UN Force Headquarters to commence the operation to capture the Original Hive ahead of schedule, even though the operation was only in its preparatory stages. This proposal is accepted by the pro-Alternative 5 faction with the conditions that G-element refinery plants are placed under US Armed Forces jurisdiction, and should the operation fail, 'Operation Trident' will immediately commence.
2002 Jan 1st	**UN: Operation Cherry Blossom, US: Preparations for Operation Trident** As the UN launches Operation Cherry Blossom to eliminate the Original Hive, the US enters a state of readiness to commence G-Bomb attacks on all hives within 18 hours, should the operation fail. Simultaneous diversionary attacks are conducted by several military forces on all hives, and an orbital drop of UN and US forces on the Original Hive results in the destruction of Target Alpha, the hive's core. The inter-hive network, proven by 00 Unit, with the Original Hive as its focal point, is successfully cut off. As a result, the BETA are no longer able to respond or adapt, and it became possible to destroy individual hives. In exchange for the many sacrifices, it is estimated that this victory bought humanity 30 years of time. With the success of the operation, Operation Trident and Alternative 5 are abandoned. 00 Unit and the XG-70d are lost, and only two members of the infiltration force return alive.
2003 April 10th	**Japan/UN: Operation Sledgehammer** With hive suppressions being conducted across the globe, the IJF drafts an operation to capture Target 20 on the Korean Peninsula. The operation, named Operation Sledgehammer, is then conducted alongside the UN Forces. With its success, Target 20 becomes the 5th hive to be eliminated by mankind. The Empire has managed to fulfill its ambition of eliminating all BETA threatening the mainland.



Operation Sledgehammer

An F-15J Kagerou awaiting deployment on a naval vessel headed towards the Korean Peninsula. With the operation commencing on the 10th of April, 2003, the IJF suppresses Target 20 on the Korean Peninsula and successfully eliminates the BETA threatening the mainland.

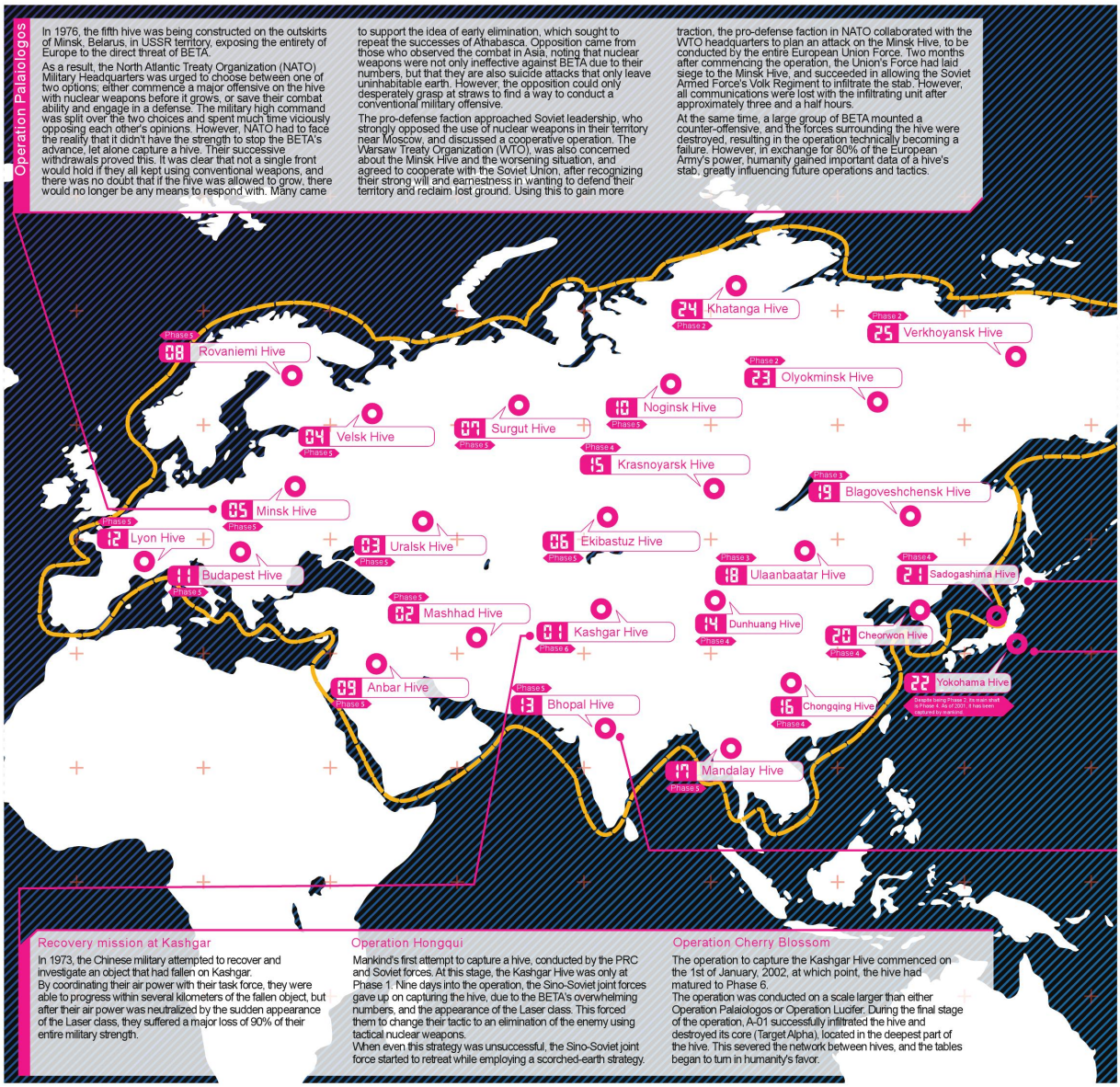


Chapter 02
BETA and Hives

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BETA Invasion Status

Over a quarter of a century has passed since the invasion of Earth by the 'Beings of Extra-Terrestrial origin and Adversaries of the human race', the BETA. Their forward bases, hives, are numerous and widely spread over Eurasia, with their sphere of influence taking up almost the entire continent.
Although an area from east Asia to the western end of Europe has been completely overrun, the Far East, Southeast Asia, and some of the Middle East are narrowly persevering.
Any further losses of resource and food producing regions would lead to mankind's demise. Therefore, these areas—the Americas, Africa, the Pacific, and Australia—were designated as priorities for support by the UN. Despite the many sacrifices with each passing day, humanity has continued to resist the overwhelming invasion force and prevent the invasion of those continents.
However, faced with the near endless numbers of BETA, conditions are gradually deteriorating by the day.



Europe

This is the continent suffering the most significant damage by the BETA invasions, with populated areas being thoroughly ravaged.
Some BETA even managed to land on the British Isles, but were narrowly fended off after a defense spanning approximately half a year.
An active defense is being conducted through regular culling operations, from forward bases located off of the Eurasian coast.

Africa

Though having repelled a full-scale invasion, Africa still carries the brunt of the global war, after accepting the relocation of many of Europe's governments and production bases.
Africa is preparing for invasions from the Anbar, Budapest, and Lyon Hives by setting up two defense lines, with one across the Mediterranean, stretching from Gibraltar to Cyprus, and the other across the Red Sea, from Suez to Aden.

Middle East

Seismic sensors, which are vital in detecting BETA invasions, do not function properly in deserts. Without their ears, the defensive forces were destroyed, in spite of their fierce fighting.
The Middle Eastern countries, which had abandoned the Arabian Peninsula, have re-established a defense line on the east coast of the African continent, with assistance from the African Coalition.

Asia

The Original Hive, also called the Kashgar Hive, exists here.
After invading west Eurasia and the Indian subcontinent, the BETA advanced east. Hence, many hives in Asia are comparatively new.
China, the Korean Peninsula, and Southeast Asia are currently under BETA control.

Soviet Territory

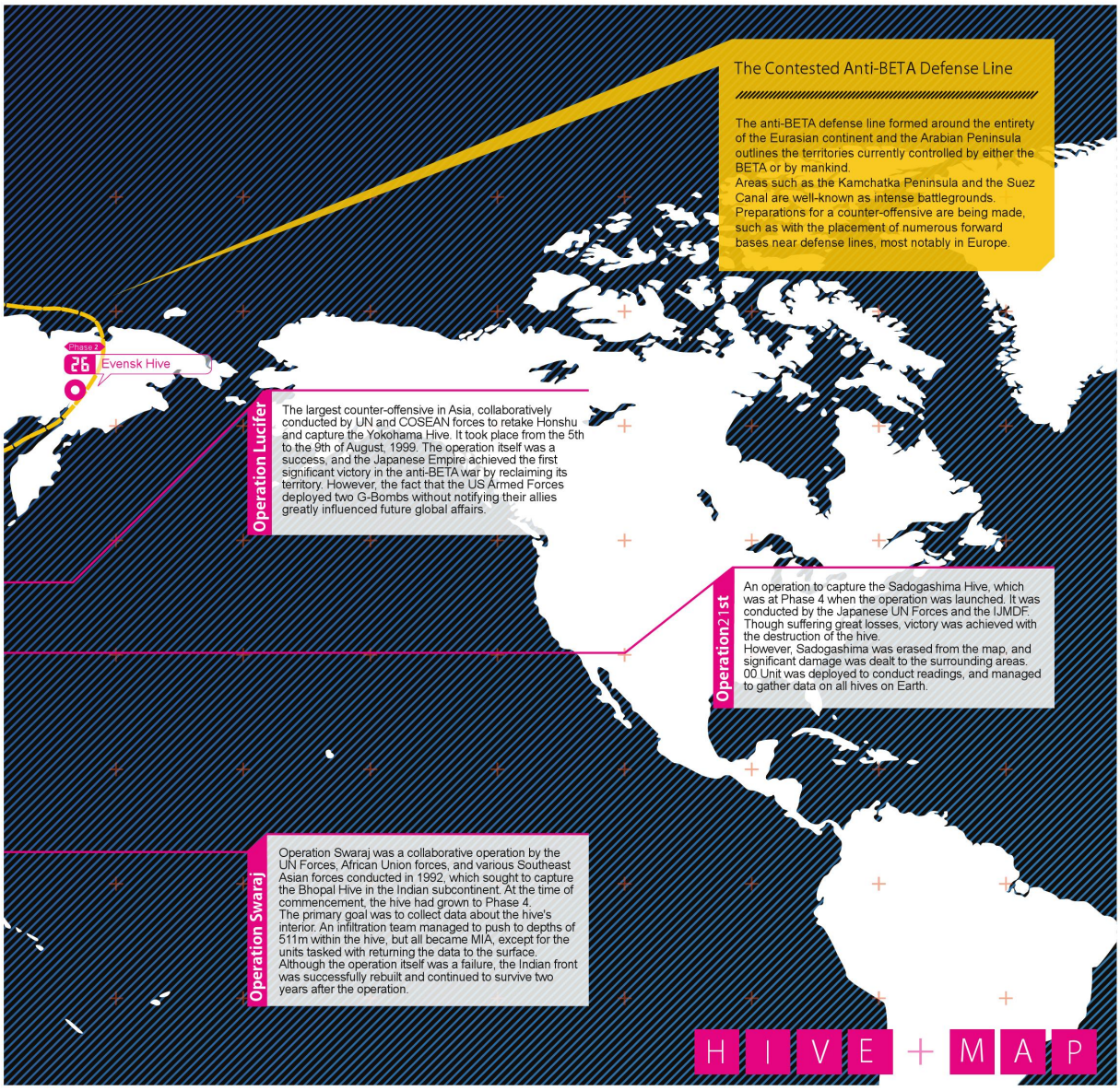
With the BETA splitting Eurasia into east and west, the Soviets lost much of their territory.
Currently, only eastern Siberia, the Kamchatka Peninsula, and the northern portion of Alaska, which had been leased by the US, remain as Soviet territory.
However, they have established a defense line crossing the Bering Strait and Arctic Ocean, holding back the BETA invasion of the North American continent.

Alaska

As well as being the frontmost line of BETA defense in the Northern American continent, it is also the final line of the Eurasian defense encirclement.
Yukon Base, owned by the UN Pacific 3rd Force, houses development teams from many countries, conducting advanced TSF development. Though primarily a defense base, it is also important for being a research hub.

North America

Since 1974, when the BETA landing at Saskatchewan, Athabasca was quelled by mass nuclear attacks, the North American continent hasn't suffered a BETA threat.
Although much of Canada had become uninhabitable as a result of radioactive contamination, the US became a production base, supporting the world in both industry and agriculture.



■Phases are indicated as of 2001.

Japan

Although it is a small island nation in the far east, two hives, at Sadogashima and Yokohama, were built on its territory.
Furthermore, the Cheorwon Hive is in very close proximity, being on the Korean peninsula, making it is a special region for its high concentration of hives.
Disregarding such harsh conditions, the Japanese Empire has not fallen, but is on the brink of collapse as they fend off the invasion.

Australia

One of the continents which has received neither a BETA invasion nor landing units.
This is largely due to it being a landmass suited to defense, with its isolation from other continents.
Furthermore, were the BETA to invade Australia, defenders would have an advantage, knowing that the BETA's predicted path would be to attack from the islands to its north.
With projects to turn its deserts into arable land, Australia is becoming a valuable source of food for the world.

South America

A continent facing almost no risk of BETA invasion, as North America is safe, and it is flanked by the Atlantic and Pacific oceans on its east and west respectively.
With the Eurasian continent falling under BETA control, the Amazon Rainforest has become an important source of oxygen.

BETA Invasion Progression

Transition of Invasion

The landing of the BETA in China in 1973 set off what would become 28 years of fighting between BETA and mankind. Humanity faced repeated losses against the BETA's overwhelming numbers, and as of 2000, there have been 26 hives constructed on the Eurasian continent and the Japanese archipelago.



1973-1977



1978-1984

1973-1977
BETA Invade Earth

1973 — 01

BETA landing units settle in the Xinjiang Uyghur Autonomous Region at Kashgar and commence construction of the Original Hive. Having refused UN Forces intervention, the Sino-Soviet combined force commences Operation Hongqui. Although the battle had initially been progressing in their favor, two weeks after the landing, their air power was neutralized by the appearance of the Laser class, forcing the adoption of a scorched-earth strategy using tactical nuclear weapons.

1974 — 02

BETA landing units, launched from the Moon, settle in North America in the Canadian province of Athabasca, Saskatchewan.
Reflecting on the events at Kashgar, the US Armed Forces almost immediately focused their strategic nuclear weapons onto the hive, successfully eliminating the landing units. However, this contaminated much of eastern Canada with radiation.

The areas from Iran's Persian Gulf coast to Turkey's Black Sea coast fall under BETA control. Afterwards, the group of BETA advancing west from Kashgar construct a hive at Mashhad, Iran.

1975 — 03

The BETA bypass the Caspian Sea and construct a hive at Uralsk, Kazakhstan.

1976 — 04 05

The BETA vanguard reaches the White Sea in northeastern Europe. The northward advance of the BETA from Kashgar reaches full speed.
Hives are constructed in the Soviet territories of Velsk and Minsk.

1977 — 06

The invasion into Eastern Europe intensifies.
The group of BETA that had moved northward from Kashgar reach the Ural Mountains.
They construct a hive at Ekibastuz, Kazakhstan.

1978-1984
The Failure of Operation Palaiologos Leads to the Collapse of the Front

1978 — 09

The NATO and WTO forces commence Operation Palaiologos to eliminate the Minsk Hive and stabilize the Eastern European front.
Although they temporarily push back the BETA, the failure of the operation only increases the BETA's momentum.
Having exhausted their military strength, all forces fall back.
A hive is constructed at Surgut, in Soviet territory.

1980

Weakened and facing the increasing momentum of the BETA's northward advance, the Sino-Soviet and European Union forces continue to retreat.
The BETA reach the Arctic Ocean, splitting the Soviet Union into East and West.
Almost all of northwest Eurasia falls under BETA control.

1981 — 08

West Europe begins to turn into the major battleground.
Operation Dunkirk is conducted until 1984 to help facilitate the evacuation of Europe's civilians and items of cultural significance to countries in Africa, South America, and Southeast Asia.
A hive is constructed in Rovaniemi, Finland.

1982

US Congress approves the lease of Alaska to the Soviet Union.

1983

The EU Headquarters relocates to London.
Governments of several European nations flee to the UK and Greenland.

1984 — 09 10

The BETA start a southwards advance from Kashgar.
A transoceanic invasion of BETA is confirmed at the English Channel.
Hives are constructed at Anbar, Iraq and in Soviet Territory at Noginsk.

1985-1994
The Fall of Europe and the Indian Subcontinent

1985 — 11

The Defence of Great Britain commences.
A hive is constructed in Budapest, Hungary.

1986 — 12

A hive is constructed in Lyon, France.

1989

BETA reach the Suez Canal defense line.

1990 — 13

Eastward advances from Kashgar intensify. The Chinese continent becomes the main battlefield. A hive is constructed in Bhopal, India.

1992 — 14 15

Space forces are deployed for the first time in Operation Swaraj.
Orbital drops and bombardments become conventional tactics for future hive captures.
Although Operation Swaraj fails to capture the Bhopal Hive, the Indian front, which was expected to fall within a year, is successfully reinforced.
Hives are constructed in Dunhuang, China, and in Soviet territory at Krasnoyarsk.

1993 — 16

The BETA vanguard closes in on Dalian.
Operation 9-6 is conducted by Chinese-Korean coalition forces alongside Imperial Japanese Continental Expeditionary Forces to defend Dalian.
A hive is constructed in Chongqing, China.

1994

The Indian subcontinent falls under BETA control.

1995-1998
The BETA Suppress China and Invade Japanese Mainland

1995 — 17

BETA invasions on all Eurasian fronts intensify.
A hive is constructed at Mandalay, Burma.

1996 — 18

A hive is constructed at Ulaanbaatar, Mongolia.

1997 — 19 20

With the fall of the Suez Canal defense line, the BETA reach the Red Sea.
Hives are constructed in Soviet territory at Blagoveshchensk and at Cheorwon, Korea.

1998 — 21 22

The BETA advancing east from Chongqing cross the East China Sea and land on the Japanese coast at Kyushu and Chugoku.
The Sino-Soviet combined force abandons their defense of Siberia.
Two hives are constructed in Japan, on Sadogashima and at Yokohama.

1999-2000
Soviet Territory Falls Under BETA Control Despite Success of Hive Capture at Operation Lucifer

1999 — 23 24

Operation Lucifer is successful and Japan reclaims Honshu after capturing the Yokohama Hive. Following Honshu, Shikoku and Kyushu are also reclaimed. On the Eurasian front, the BETA's northward advance intensifies.
Hives are constructed in Soviet territory at Olyokminsk and Khatanga.

2000 — 25 26

Almost all of Siberia is suppressed by BETA.
Hives in Soviet territory at Verkhoyansk and Evensk are constructed.

2001-2003
A Proper Full-Scale Counter-Attack

2001

Invasions are ongoing across the globe. On the 25th of December, the UN Forces and the IJF commence Operation 21st to capture the Sadogashima Hive. In exchange for the eradication of Sadogashima, they succeed in eliminating the hive. On December 30, a group of BETA belonging to the Sadogashima Hive raid the former location of the Yokohama Hive. However, they are intercepted by the IJA and UN Forces in Japan. They narrowly succeed in forcing the group of BETA to withdraw, after a desperate struggle that comes to be known as 'the most intense battle in the history of the war with the BETA'.

2002

With the combined strength of humanity, Operation Cherry Blossom is conducted on the 1st of January to capture the Kashgar Hive.
Simultaneous attacks are launched against all Hives on the edge of the Eurasian continent, while UN and US orbital drop forces infiltrate the Original Hive.
Though these forces are wiped out, the Original Hive is successfully destroyed.
Having lost Target Alpha, the BETA slowed down in their ability to adapt to new tactics. Though their numbers were still a threat, humanity finally gained the traction needed for a counter-attack.



1985-1994



1995-1998



1999-2000

Important Hives

Currently, there are 26 hives confirmed to exist on Earth, radiating out from the center of Eurasia.

The hives are numbered by their order of appearance, but named based on their location.

All hives were derived from the landing unit that settled in Kashgar in 1973. The various hives follow a set of rules, and it has been confirmed that the hives exchange and share information.

Furthermore, after analyzing recent combat data, the reactor has also been all but confirmed to be infrastructure for transmitting information. It is also assumed that the reactor functions not only as an energy source, but also as a seamless hybrid system with an intel hub, much like a computer.

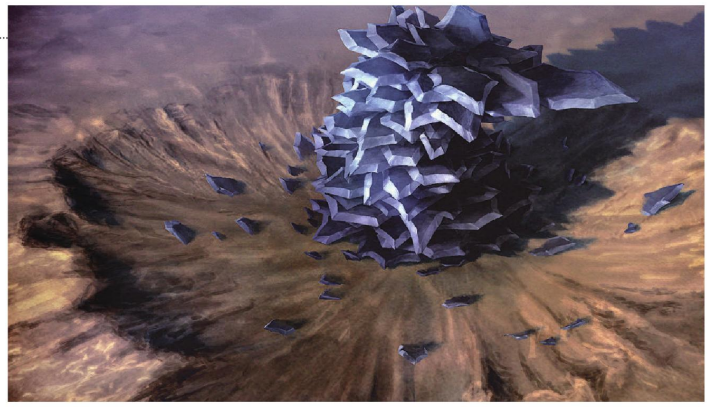
Also, after verifying BETA attack movements during the Defense of Yokohama Base, it is assumed that the Original Hive's reactor, Target Alpha, controls all other hive reactors, and that individual reactors do not make their own decisions, acting only by the orders of Target Alpha.

In other words, hives are connected by a bottom-up and top-down type of command network.

In the following section, hives that were the stages for humanity's important counter-offensives during The Great BETA War will be explained individually.

Kashgar Original Hive [Phase 6]

The first hive on Earth, which was built by the BETA coming from the Moon in 1973.
Currently, all hives on Earth are derived from this hive in Kashgar, giving it the name 'Original Hive'.
Within the Original Hive exists a super-large reactor with the strategic designation 'Target Alpha', commonly referred to as the core. A refinery plant in this hive that purifies the special materials known as G-elements was also given the strategic designation 'Target Bravo', and is commonly called the atelier. The scale of the hive is tremendous; the main hall that connects to the core has a volume of 900,000 cubic meters, and is seen as the supply facility for the BETA.
On January 1st, 2002, during Operation Cherry Blossom, Target Alpha was successfully destroyed.



Sadogashima Hive [Phase 4]

A hive on Sadogashima, in the territorial waters of Imperial Japan. It was constructed in 1998 and was given the designation of 'Target 21'.

The hive sprawls over almost all of Sadogashima, placing the island under complete control of the BETA. The hive's location was very dangerous, since if it progressed to Phase 6, its stab would reach Honshu. During 2001, it was only at Phase 4, but the sheer numbers of BETA found there greatly exceeded expectations, and were more than what the UN Force or the IJF could deal with.

As a result of Operation 21st, which deployed the Susano-O Mk. II alongside half the total strength of the Far East UN Forces, the entirety of Sadogashima was erased.

The BETA that later attacked Yokohama Base were thought to have been using the Sadogashima Hive as a base.

Yokohama Hive [Phase 2]

A hive constructed in 1999 at Yokohama by BETA that landed on the Japanese archipelago.

It was revealed that many civilians from the region were captured by the BETA and were subjected to some form of experimentation. Operation Lucifer was conducted in the August of 1999, resulting in the successful destruction of the hive.

With the UN's goals of researching the BETA and defending the occupied facilities, the hive's ruins and stab were converted into Yokohama Base.

The reactor continued to function, and was used not only for research but as the power source for the base.

Although classified as being at Phase 2, it is unique in that its main shaft's diameter and depth are that of a Phase 4 hive.

Minsk Hive [Phase 5]

A hive constructed in a relatively early stage of the BETA war, located within Soviet territory.

During Operation Palaiologos, the Eastern European major counter-offensive conducted in 1978, mankind was able to infiltrate a hive and reach its middle stratum for the first time.

The operation would become famous for its success in gaining data on the hive interior structure. Data gathered from the operation allowed for highly accurate simulations and predictions about the BETA and their hives, helping humanity maintain its front lines. This data was named the 'Volk Data' after the unit that had succeeded in infiltrating the hive. Of the entire infiltration force, only the 14 Surface Pilots tasked with carrying the data returned alive, and the encirclement of the hive was broken by the sudden appearance of a massive number of BETA.

The operation failed and the hive continues to function to this day.



Basic Hive Structure

A Hive—A massive structure constructed in territory controlled by BETA.

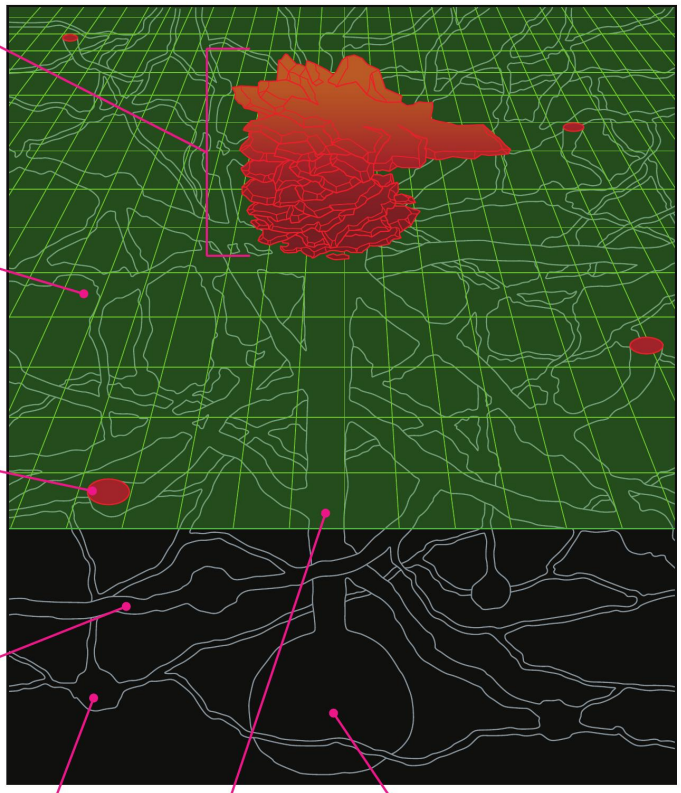
They consist of two layers: a surface structure called the 'monument', and a vast underground tunnel system—called a 'stab'—of shafts and drifts, with halls connecting them.

The stab is the core of a hive, and can be considered a 'nest', housing endless numbers of BETA.

The reactor, the heart of the hive that supplies the BETA's energy, is situated in the deepest portion of the underground structure.

Hives are constantly being expanded by the BETA, and development of hives are split between Phases 1 to 9. As the phase progresses, the number of BETA and the size of the structure both increase.

However, of all 26 hives confirmed to be on Earth, none have advanced past Phase 6.



Monument

A structure built on the surface directly above the hive's main shaft.
Construction of the monument begins in Phase 2, and it eventually reaches a height of 1000m.
It can also be thought of as a catapult, since projectiles can be launched from it

Stab

The stab consists of features including the main shaft at the center of the hive, drifts that extend from it, and the main hall.
The stab is developed from the main shaft which expands as the stab expands as a whole.

Gate

An exit to the surface, created during Phase 1 of the hive, within 20 hours of its establishment.
It is the entrance and exit for the BETA, and is used as an infiltration point by TSFs during hive capturing missions.

Drift

A tunnel which extends horizontally from the main shaft.
Generally, they extend to the surface and become gates.
Furthermore, as these expand with increasing BETA activity, it is thought that the stab is manually excavated by the BETA themselves.
Finally, as the stab expands, sleeper drifts can be formed, with some theories suggesting that these are unneeded drifts that have been closed off.
There have been cases where BETA suddenly appeared from these sleeper drifts.

Hall

A hall is a space that acts as a type of junction connecting various drifts. They begin forming once the hive reaches Phase 2.
Inactive BETA reside in halls, and standard strategies in hive infiltration missions involve avoiding halls as much as possible.

Shaft

Two types of shafts exist: the main shaft, created directly above the main hall, and shafts that connect halls vertically.
Notably, the main shaft is constructed alongside the hive itself, and acts as the center of the stab.
It is believed that when hives reach Phase 5 and beyond, unidentified objects can be launched from the exit of the main shaft, into outer space.

Main Hall

A giant hall at the bottom of the main shaft. The reactor, considered the heart of the hive, is kept here.
Energy created by the reactor is the hive's power source, and BETA that run out of energy can be directly resupplied from the reactor.

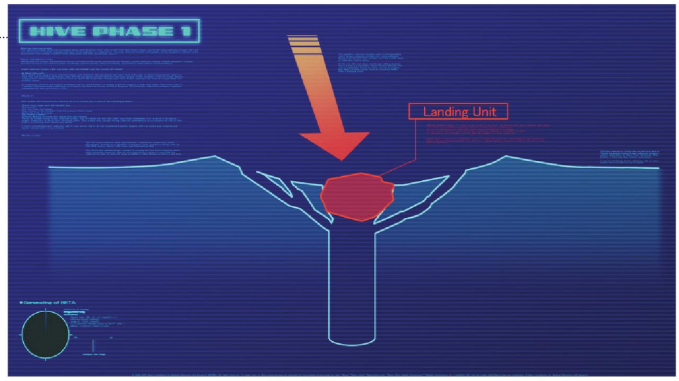
Hive Development

Hives are classified by their developmental stage, also known as their 'Phase'. This following section will outline the various stages from Phases 1 to 6.
Earth's largest hive, the Original Kashgar Hive, boasts a classification of Phase 6.

Phase 1

Monument Height：0 m
Stab Radius：Unknown
Maximum Depth：Unknown
Notable Hives：Unknown

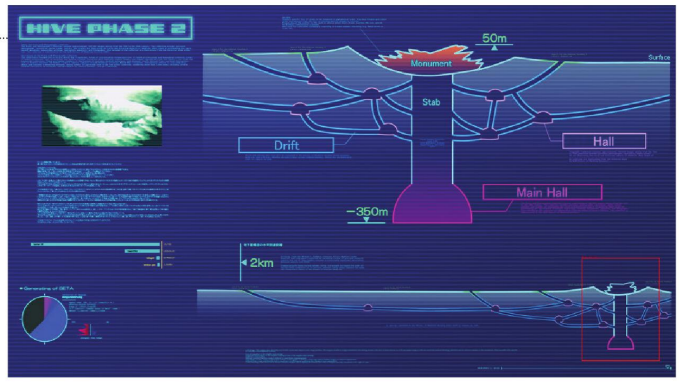
The first stage of a hive is reached within 20 hours of the landing unit's settlement. The BETA from the landing unit become active, and the foundations of the hive are constructed, including the main shaft and a gate, as an entrance and exit. At the same time, they begin to invade the surrounding areas.
After this, the landing unit's reactor is lowered to the deepest part of the shaft and becomes the energy source for the hive. It is still unknown how H:02 or subsequent hives were constructed. The BETA's ecology seems to reflect that of insects on Earth. It is hence credible to assume that there exists a special being, like a queen bee, and that hives can split up, like nests do.



Phase 2

Monument Height：50m
Stab Radius：2km
Maximum Depth：350m
Notable Hives：Yokohama Hive
（Main Shaft is at Phase 4), Evensk Hive

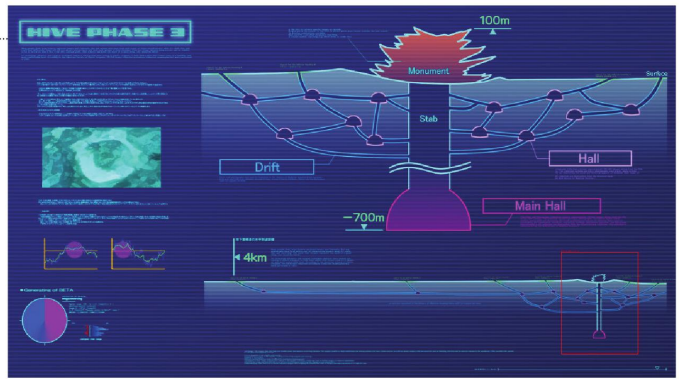
The second stage of hive development, where the monument has reached a height of 50m. The maximum diameter of the main shaft reaches 100m, and halls begin to form.
The stab's radius is still small, at only 2km, but by this stage, approximately half of all plant life in the surrounding 30km region is destroyed. As a result, this stage heavily threatens the human environment.



Phase 3

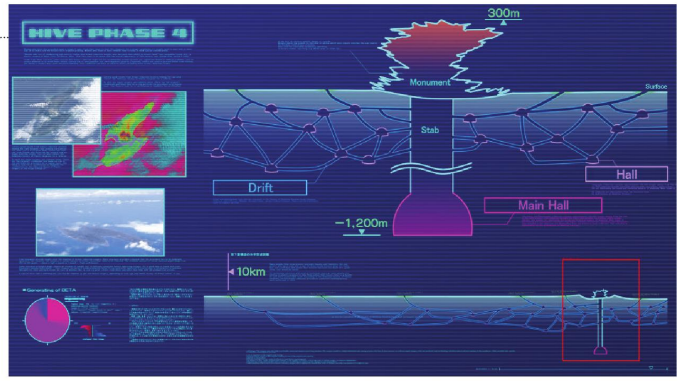
Monument Height：Over100m
Stab Radius：4km
Maximum Depth：700m
Notable Hives：(At the time of Operation Palaiologos)

The third stage of hive development, where the hive reaches approximately twice the scale of a Phase 2 hive.
A hole opens at the top of the monument, now over 100m tall, completely exposing the main shaft to the sky.



Phase 4

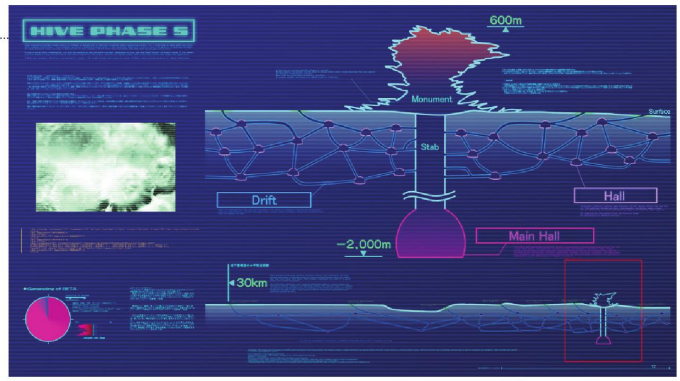
Monument Height：Over300m
Stab Radius：10km
Maximum Depth：1200m
Notable Hives : Sadogashima Hive, Cheorwon Hive



At the fourth stage of hive development, the main shaft reaches a maximum diameter of 200m, and the stab is able to stretch to approximately 20km across. Also, due to BETA activity, the surrounding 40km radius is almost entirely leveled, aside from volcanoes.

Phase 5

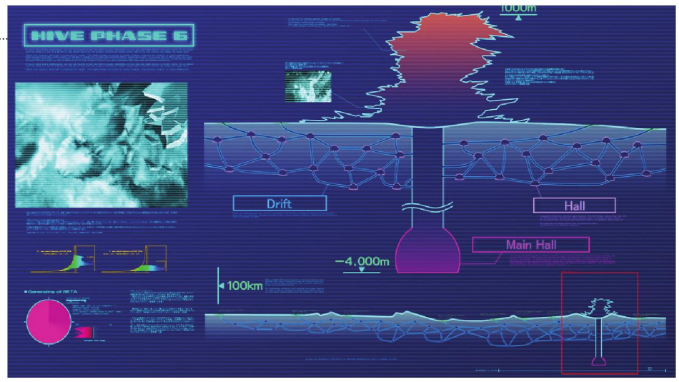
Monument Height：600m
Stab Radius：30km
Maximum Depth：2000m
Notable Hives : Bhopal Hive, Lyon Hive



The fifth stage of hive development
The monument, now 600m tall, gains the ability to launch objects. These objects are called 'projectiles'.

Phase 6

Monument Height：1000m
Stab Radius：100km
Maximum Depth：4000m
Notable Hives : Kashgar Hive



In the sixth stage of hive development, the scale of the monument and stab become extremely large, and the numbers of BETA belonging to the hive reach astronomical levels. The Original Hive, the largest hive on Earth, is at this stage.

BETA Invasion Process

Results from previously obtained observational data have revealed a certain degree of procedure in how the BETA conduct their invasion.

After landing, the BETA commence an invasion in a single direction, while constructing the Original Hive. As they invade, they construct new hives to establish their sphere of influence.

Once progression in a single direction has reached a certain level, they begin invading in a new direction from the Original Hive. In the case of Earth, an eastwards advance followed the initial westwards one. It would be reasonable to assume that this was part of some strategic plan, though it is uncertain whether it is due to Earth's geomagnetism and rotation, its terrain, or due to prioritization of underground resources.

There is a trend that they are slower to deploy across oceans or large rivers than they are on land. Moving in water not only causes them to slow down, but since they move along the floor of the body of water, it also increases the distance travelled, and the distance from their hive. It is also believed that BETA must enter a deactivation phase to cope with water pressure in the deep parts of oceans such as trenches. This phase is assumed to be similar to the one that BETA used to adapt between the different environments of the Moon and Earth.

Looking at past invasions over oceans, it appears that BETA aren't necessarily weak to water, but prefer to select an invasion route that is most efficient when it comes to securing strategic resources. Hence, crossing oceans is a lower priority for them when carrying out invasions.

However, the invasion patterns explained here are only based on observational data of BETA movements, and the specifics of the most fundamental questions, such as the conditions for hive construction or how reactors are moved, remain unknown.

Stage 1: Flight of the Landing Unit

BETA have been determined to be lifeforms which have flown in from outside of the solar system.

Landing units are thought to be launched from hives on other planets at Phases 5 or higher (most probably the Original Hive of the respective planet), rather than all originating from the BETA home world. This is evidenced by the BETA's invasions of Mars and the Moon, as well as their exponential growth in numbers.

It is unknown whether their invasion target is planned at the time of launch, or if they search for their target after having been launched.

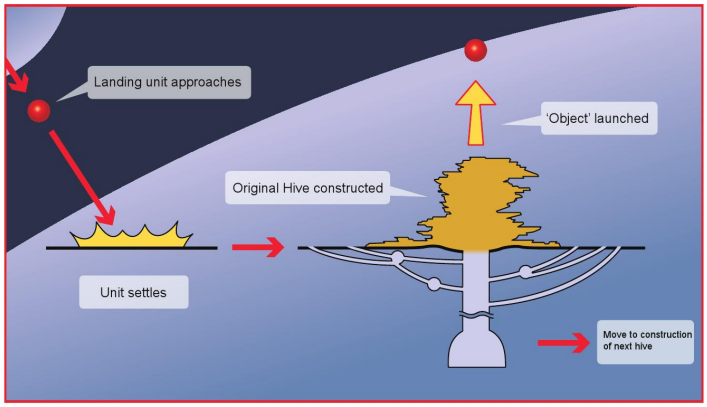
Stage 2: Settlement of the Landing Unit

After reaching their target planet, the entire landing unit falls to the surface. From a strategic standpoint, it would seem that sending several landing units spread out over the planet would be a more efficient way to suppress it. However, the BETA appear not to use such a strategy, rather, only relying on having a single landing unit settle at a specific point designated as their drop zone. This has been thought to be due to the Original Hive's core being somewhat like a 'queen' in insect terms, but this claim has not been substantiated.

Furthermore, it is assumed that landing sites are chosen for a specific reason, but none have yet been confirmed.

Stage 3: Construction of the Original Hive

The location settled by the landing unit is converted into the site to construct the Original Hive. The BETA emerging from the landing unit commence an invasion of the surrounding areas. However, this is interpreted as preparations for the construction of the Original Hive, since no wide-scale invasion occurs. A proper invasion of the surrounding areas commences once the core is set in the deepest area of the main shaft. During this invasion, they also expand their stab, but it is unknown at specifically which phase they construct facilities characteristic of the Original Hive, such as the main hall around the core, or the atelier, the G-element production facility. It is surmised that the core itself is contained within the landing unit.



Stage 4: Construction of Other Hives

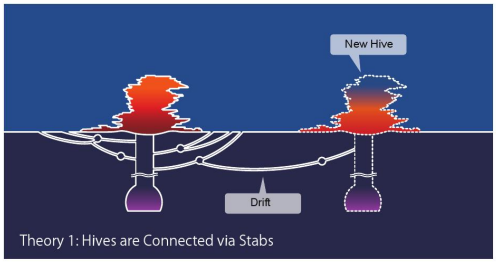
The pace of the BETA's advance is not necessarily always high. For example, during the invasion of the Japanese mainland, it took approximately 17 days to travel the route from Tsushima to Sadogashima, passing through Kyoto. It is also known that their advance temporarily stops when commencing construction of a new hive, but the duration of this pause is inconsistent. For the Sadogashima Hive, the invasion restarted approximately two months after construction commenced, but for the Yokohama Hive, the invasion was halted for about seven months. Many things regarding hive construction are also unknown, including how the location is selected, how the reactor is placed, and even where the construction materials for the hive come from. Though judging by how the reactor is able to resupply BETA with energy, it is reasonable to assume that hives are placed with the goal of securing a supply line.

Stage 5: Launch

Once a hive expands enough to reach Phase 5, it launches objects known as 'projectiles' from its monument.
These objects take a flyby orbital path and leave the solar system, but their precise targets are not known.
There is a separate theory that these landing units are launched to other planets from the Original Hive, when necessary.

Hive Proliferation

After the Original Hive is formed, the exact process of how hives appear elsewhere remains another mystery regarding hives. After research on hives began, many theories were raised, but only two are currently viewed as credible.

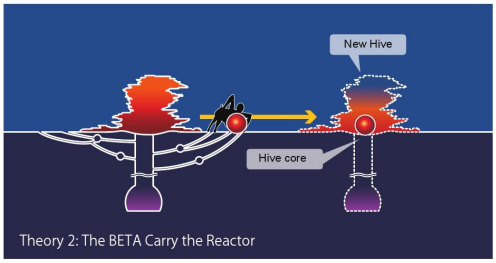


Theory 1: Hives are Connected via Stabs

This theory states that once a hive reaches a certain Phase, its drifts extend and form a new hive. British Professor Kolgio Anderson based this theory on the Volk Data from Operation Palaiologos.

Considering the stabs of hives, this is a highly plausible theory. In regards to how the reactor is set up, it is thought that a unit—along with the materials used to make a new hive—branches off from its reactor, and digs its own drifts.

The information communication model among BETA also supports this theory. However, there were no connected drifts found between the captured Yokohama Hive and its neighbor, Sadogashima Hive, so this theory has recently been brought into question.



Theory 2: The BETA Carry the Reactor

This theory claims that the BETA carry a reactor to the location of a new hive.

Because reactors have not been seen to possess self-directed motion, this theory has had many supporters for a long time. The high mobility of BETA also supports this theory. However, the theory lacks conclusive evidence, since it is unknown whether BETA exhibit this behavior, and since no BETA have been formally confirmed to undertake the role of carrying the reactor.

Though, considering the various strains of BETA, it would not be strange for a dedicated strain to exist for this purpose. Recently, a compromise between these two theories has been presented, and it has gathered attention. This new theory is based on a report by the journalist, Cedar T. D'Urbervilles, stating that she witnessed a BETA carrying 'something'.

BETA Ecology

The Arrival of BETA

The first contact between mankind and BETA occurred in 1958, before the Great BETA War, when Viking 1, a Mars probe, sighted them on Mars. Mankind initiated the Alternative Program to try to understand and communicate with the BETA.

However, the reality is that the BETA did not recognize humans as lifeforms, and after their landing on Earth in 1973, they commenced their indiscriminate invasion.

Despite continued research on BETA ecology as part of the anti-BETA strategy, the main theories presented by scientists are nothing more than hypotheses based on the results Alternative 3's research.

In short, there has been practically nothing revealed about the BETA other than the fact that they are a carbon-based, intelligent life form with a social structure, and that they come from outside the solar system.

Strains of BETA

There are currently eight main classified strains of BETA that have been confirmed since the beginning of the war. However, during Operation Cherry Blossom, a further four strains were identified, highlighting the reasonable chance that new, unknown strains could appear in the future. Furthermore, there appears to be no fixed characteristic shared across all strains of BETA, so the following strains have been morphologically classified based on their appearance alone. Common biological systems or features among the strains have not been taken into account, and it isn't even confirmed whether such systems exist among them in the first place. The classifications are strongly influenced by the military, as they were named by necessity during combat to identify the different types of enemies.

Currently Identified Strains:

- Pre-existing strains : Laser, Heavy Laser, Grappler, Destroyer, Fort, Tank, Warrior, Soldier
- Strains identified at Operation Cherry Blossom : Carrier, Gate, Brain, Heavy Brain

BETA Abilities

The BETA are extraordinary lifeforms that boast extremely tough bodies and high vitality, as well as high combat capabilities. Regarding their biological abilities, there is no doubt that they are physically stronger than any terrestrial species. However, some have questioned their mental processes and ability to think. Their overall invasion patterns and their actions during combat remain contested as either being biological instincts, or some clear and strategic plan.

In battles involving large numbers, the BETA only let their numbers speak, and barely conduct actions that could be called 'strategies'. However, they show signs of intelligence with their clearly non-instinctive ability to learn and share knowledge.

Also, during the Yokohama Base Incident, they clearly demonstrated the ability to coordinate their combat actions, although at rudimentary levels. Far less is known about BETA abilities in regards to intelligence than their physical abilities.

Activity Capacity

The BETA are able to sustain high levels of activity far beyond those of any existing life forms. Without respiratory or digestive organs, they have no need of breathing. In response to changes in gravity or atmospheric pressure, they can remain active by undergoing metamorphosis.

From observational data gathered so far, their main movements involve invading the surface and digging underground in groups. It is thought that individual BETA very rarely move on their own. Furthermore, they cannot swim. Instead, they move through water by walking across the water body's floor. This appears to be one of the reasons why the BETA did not cross the Atlantic after suppressing Europe, opting to go east and south instead.

During the Yokohama Base Incident, it was found that an individual BETA could resupply its energy from the reactor or at resupply facilities, such as halls.

Communications

A significant characteristic of BETA is their unique system of propagating information. Until recently, it was stated that each hive had its own independent strategic planning and command systems, and that these individual systems were combined into a complex hierarchical pyramid. It was also assumed that the time required to transmit information from one hive to another was 19 days.

However, Alternative 4's special reconnaissance data gathered during Operation 21st showed that there was actually a flat command structure, with all hives being under the direct command of the Original Hive. Modern research shows that when a BETA, which has gained tactical information, returns to the hive it belongs to, the information is sent immediately to the Original Hive for consideration. The Original Hive then inspects the information and formulates a response.

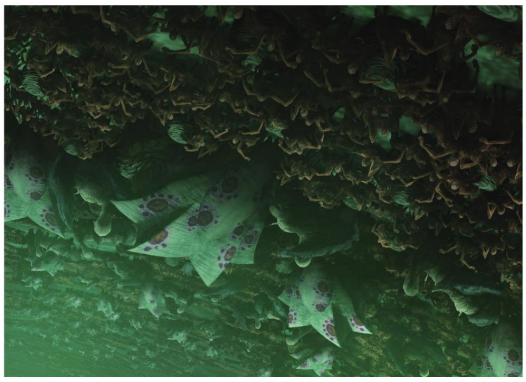
It is then assumed that an information transmission model is used, whereby the Original Hive refines its response through trial and error, until an optimal solution is found, before transmitting it to all other hives under it. The '19 days' assumed to be used for transmitting the information is actually for the building and refining of these responses.

However, the method of communication BETA use amongst one another remains unknown.

Additionally, the BETA that landed in Canada in 1974 appeared to not possess information regarding anti-air power. This suggests that information sharing is not available between Original Hives or between their derivative hive families.



Footage of a Tank class BETA, taken from Mars



Combat Capabilities

The common view of BETA is that they are closer to being a creature-weapon than a lifeform. This is due not only to their irregular appearance, but also due to their destructive behaviors resulting from their high combat capabilities.

However, TSFs seem to have the advantage over BETA in single combat, excluding the Laser Class, and large strains such as the Fort Class.

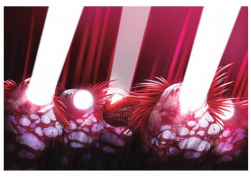
Despite this, the BETA are still able to use their inexhaustible numbers to overwhelm and suppress humanity. In high numbers, even a small strain with relatively low combat ability can pose a threat to TSFs. This strategy in numbers is perfectly natural, especially for the BETA, which typically move in groups.

Laser Attacks

A method of attack available only to Laser classes. Overall, BETA tend to prioritize attacks on humans or equipment housing advanced computers, but Laser classes prioritize anti-aircraft attacks. There are also cases where they have been used to mop up combat zones.

Even a small-strain Laser class can lock onto a flying object 380km away with an altitude of 10,000m, and they boast high accuracy and a wide firing range, which prevents any target from entering within 30km of it.

Though their detection systems are mostly a mystery, it is known that they aren't influenced by weather or direct sunlight.



Physical Attacks

This method of attack is used by most BETA, and includes the charging attacks of the Destroyer class, as well as strikes from the massive arms of a Grappler class, which can easily penetrate a TSF's armor.

Tank classes excel in jumping onto a craft as a group and biting them with their powerful jaws, which are strong enough to tear through the armor of a TSF.

Many BETA, starting with the Tank class, are confirmed to have very tough jaws and teeth, but since they do not regain energy by eating, it would be appropriate to consider these only as means to attack or gather resources.

Other Attacks

The Fort class is able to produce a jet of strong acidic solution from the tip of the tentacle growing from its telson. It is capable of melting reinforced armor in approximately 10 seconds.

During the Defense of Yokohama Base, this solution was used on the partitions of the base's facilities.

BETA Characteristics and Abilities

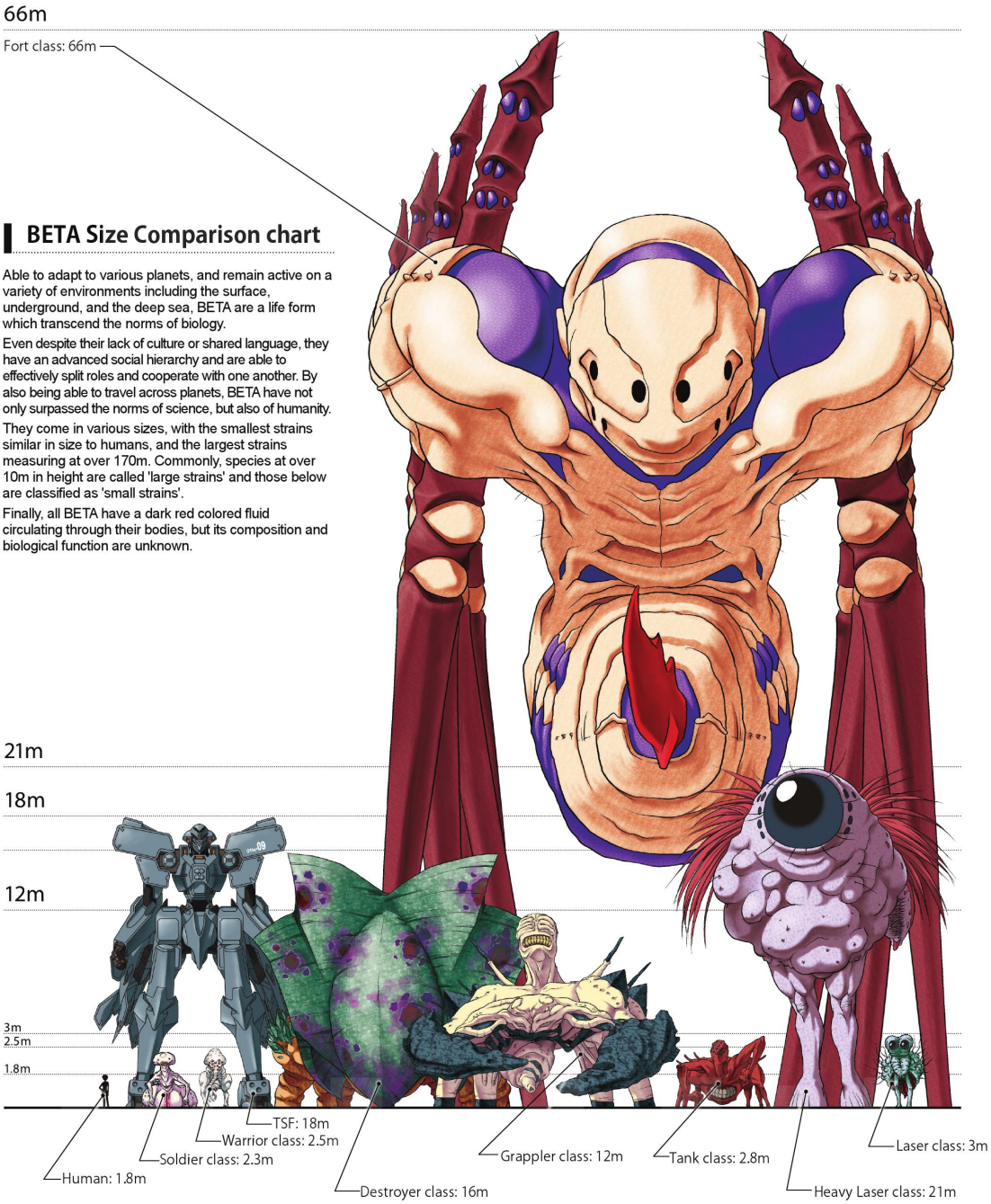
BETA Size Comparison chart

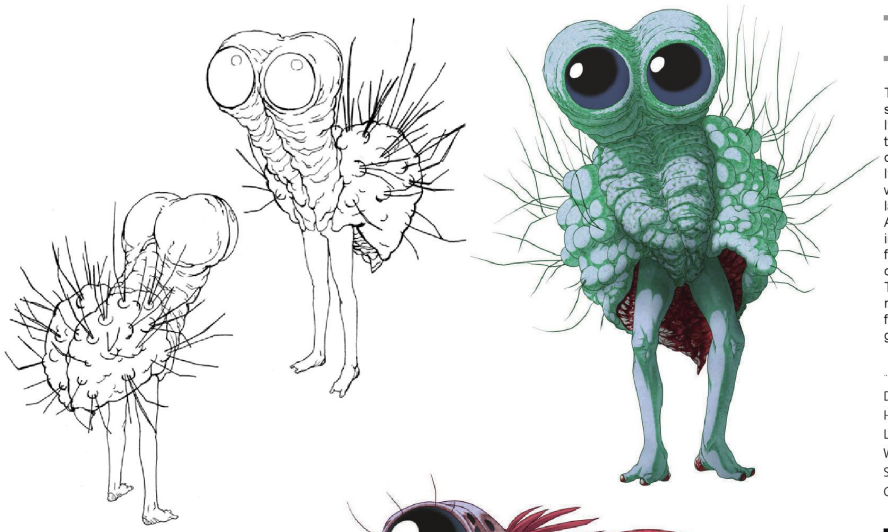
Able to adapt to various planets, and remain active on a variety of environments including the surface, underground, and the deep sea, BETA are a life form which transcend the norms of biology.

Even despite their lack of culture or shared language, they have an advanced social hierarchy and are able to effectively split roles and cooperate with one another. By also being able to travel across planets, BETA have not only surpassed the norms of science, but also of humanity.

They come in various sizes, with the smallest strains similar in size to humans, and the largest strains measuring at over 170m. Commonly, species at over 10m in height are called 'large strains' and those below are classified as 'small strains'.

Finally, all BETA have a dark red colored fluid circulating through their bodies, but its composition and biological function are unknown.





Laser Class

The smaller of the two bipedal Laser strains of BETA.
It is comparatively nimbler, and is able to fire a high output laser capable of destroying TSFs and tanks.
It can refire in a short period of time, with only about 12 seconds between laser attacks.
Anti-laser, heat-resistant armor, coated in the latest anti-laser transepidermal film can withstand the maximum output of the attack for about five seconds.
They have low defenses, and if a unit manages to get close, they can be fatally damaged with heavy machine gun fire, or even with the limbs of TSFs.

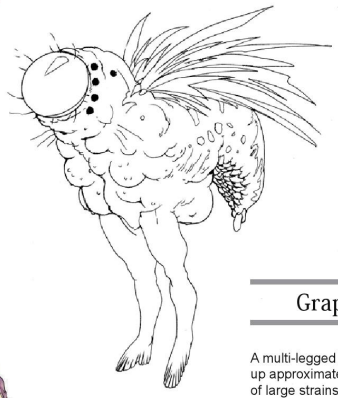
DATA
Height : 3m
Length : 1.2m
Width : 1.6m
Scientific name : Luxcius: Duo oculus
Common name : Lux





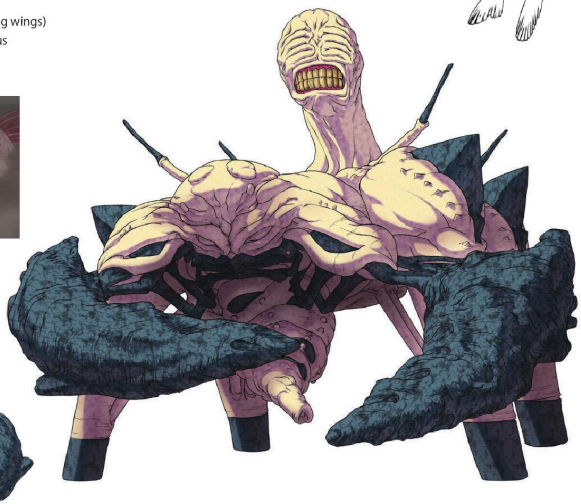
Heavy Laser Class

The larger of the two bipedal Laser strains of BETA.
Its movements are slow, but it has strong defenses, including the eyelid-shaped protective coating, which covers its single weakness - its laser emission organ. Therefore, it is recommended to attack it with shells of at least 100mm caliber, or in the case of TSFs, with 120mm cannons.
It is capable of firing a laser at a far higher output compared to the Laser class. Objects flying at altitudes of 500m can be shot down at up to 100km away (a theoretical value, assuming that it is at sea level and on flat land). It is able to vaporize even the heat-resistant armor on battleships in ten seconds.
Its range is estimated to reach close to the stratosphere, however, its interval between firing is long, at 36 seconds.



DATA
Height : 21m (Not including heat dissipating wings)
Length : 15m
Width : 11m (Not including heat dissipating wings)
Scientific name: Magnus Luxcius: Unioculus
Common name: Magnus Lux







Grappler Class

A multi-legged strain of BETA, making up approximately 60% of the population of large strains within a group of BETA.
They have a relatively high ability to detect humans.
They primarily attack with their two forearms, which have a range of 39m. Combined with their astonishing ability to rotate freely on a pivot, they boast the greatest close quarters combat ability of all confirmed BETA strains.
Their forearms have high hardness and toughness, and excel at defending against rounds. It is hence recommended to attack them from the side or rear.

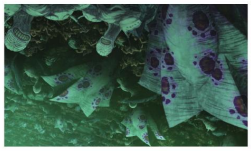
DATA
Height : 12m
Length : 19m
Width : 28m
Scientific name : Rrabidusius: Bracchium acutas
Common name : Medium



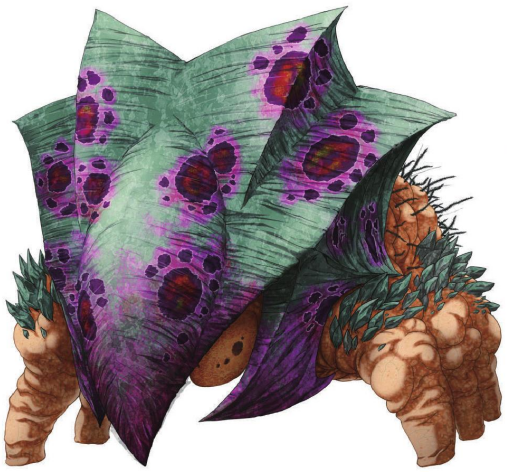
Destroyer Class

A multi-legged large strain that acts as the vanguard of the BETA.
Its front armored shell is extremely strong, much like the forearms of the Grappler class, and they have high survivability when suppressing areas.
Its armored shell also has astounding regenerative abilities. The eye-shaped patterns on the shell are all scars from regenerated wounds.
If moving in a straight line, it can reach and maintain speeds of up to 170km/h, and its main method of attack is to charge and crash into its target.
However, its turning ability and agility are both extremely low. Also, its main body, which is unarmored, is relatively weak, so it is recommended to attack it from behind.
Because its human detection ability is the lowest of all identified strains, attacks from man-portable weapons such as anti-tank missiles are also effective.

DATA
Height : 16m
Length : 18m
Width : 17m
Scientific name : Impestusis: Arma duras
Common name : Ruitare



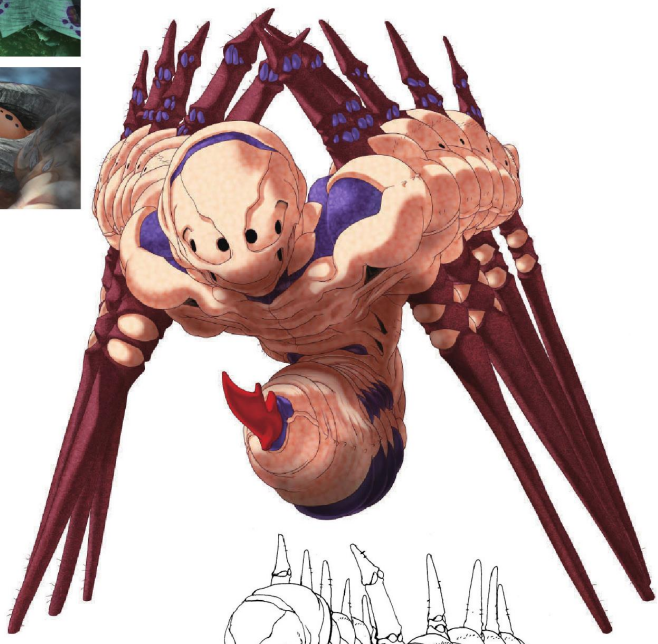


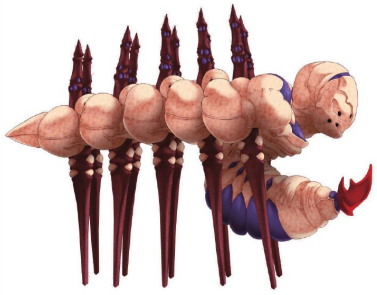


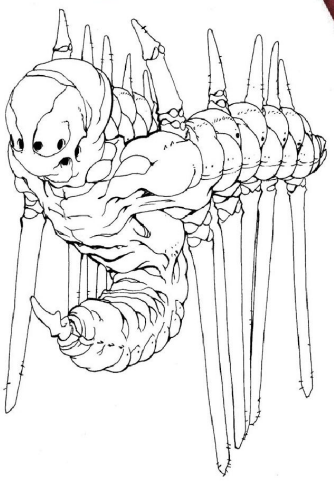








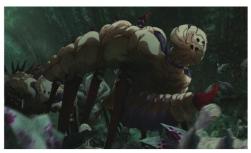




Fort Class

The largest multi-legged large strain that has been identified.
Its movements are relatively slow, and its detection ability isn't high. However, its defense and durability are extremely high, and the only points that are vulnerable to attack are the joints on its three-torso structure.
Additionally, its primary method of attack is to step on targets with its armored legs, which boast a similar hardness and toughness to the Grappler class's arms.
Its 50m long, stinger tipped telson can either be used as a whip, or can secrete a strong acidic solution.
There have also been confirmed cases of numerous small strains of BETA emerging from its womb, so caution must still be exercised even after defeating one.

DATA
Height : 66m
Length : 52m
Width : 37m
Scientific name : Pergrandium: Tria corpus
Common name : Gravis

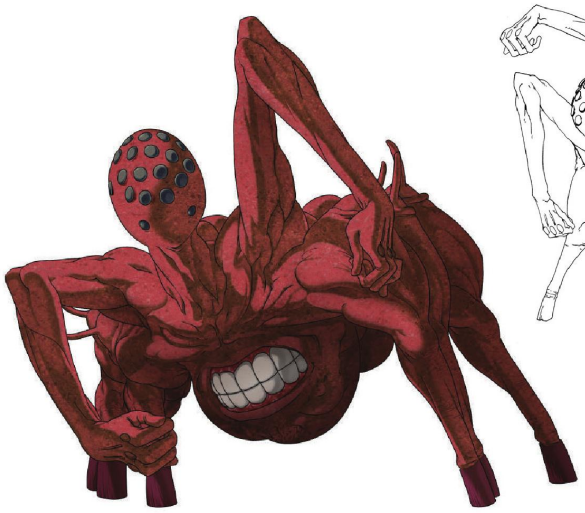


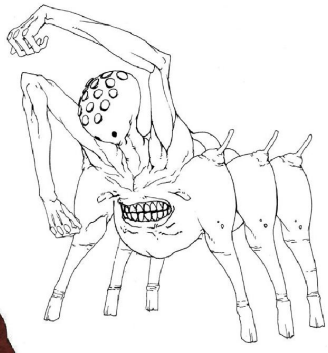
Tank Class

A medium-sized, multi-legged strain of BETA, the Tank class boasts the largest numbers in the BETA forces.
They excel in their ability to breach defenses, as well as their mobility, and can travel at 80km/h even on rough terrain.
Their jaws are their strongest weapon, capable of biting through metal and concrete. Countless numbers of soldiers have been eaten whole with their armored vehicle or TSF.
Their defenses are low, and they can be dealt with by using heavy firearms carried by infantry. However, since they move in groups ranging from several dozens to hundreds, it is recommended to avoid close combat with them as much as possible.

DATA
Height : 2.8m
Length : 4.4m
Width : 1.9m
Scientific name : Manderium: Ungulam crus
Common name : Equus pedis



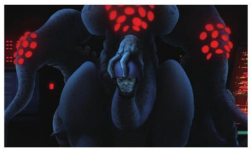


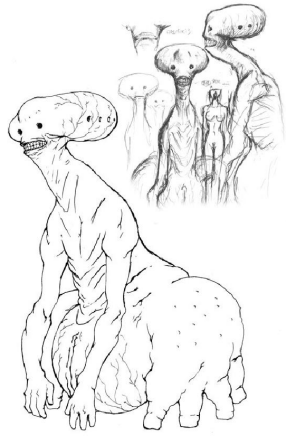


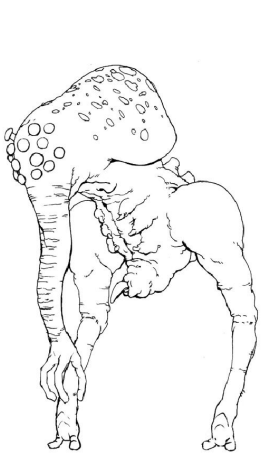
Warrior Class

The smallest bipedal strain of BETA that has been identified.
Although they have low defense, their detection ability and agility are extremely high. Their front limb, resembling an elephant's trunk, is strong enough to pluck out a human's head, making it a significant threat to infantry units in close quarters combat.

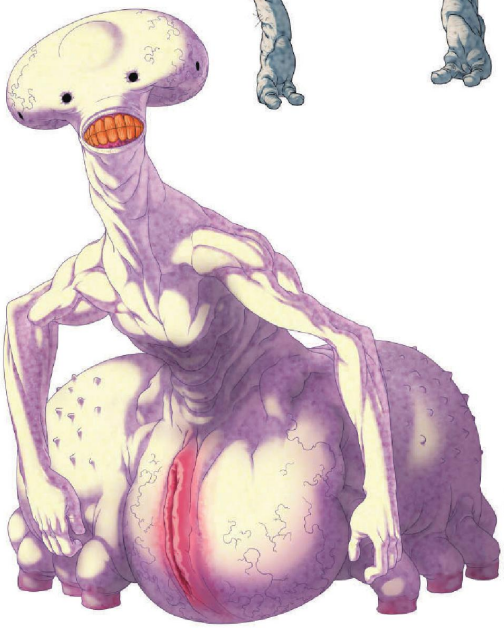
DATA
Height : 2.5m
Length : 1.7m
Width : 1.5m
Scientific name : Agilisis: Naris prolix
Common name : Barrus naris











Soldier Class

The smallest multi-legged strain of BETA, first identified in 1995.
They have the highest detection ability of all known BETA. They pose a major threat against infantry due to the quietness and speed of their movement on flat terrain, along with their front arms and jaw, which are multiple times stronger than humans'.
From their appearance and late introduction, some experts have pointed out the possibility that they were created using humans as a reference.

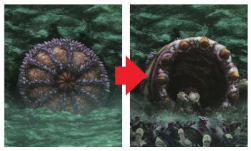
DATA
Height : 2.3m
Length : 1.2m
Width : 1.4m
Scientific name : Venarius: Caput grande
Common name : Venator

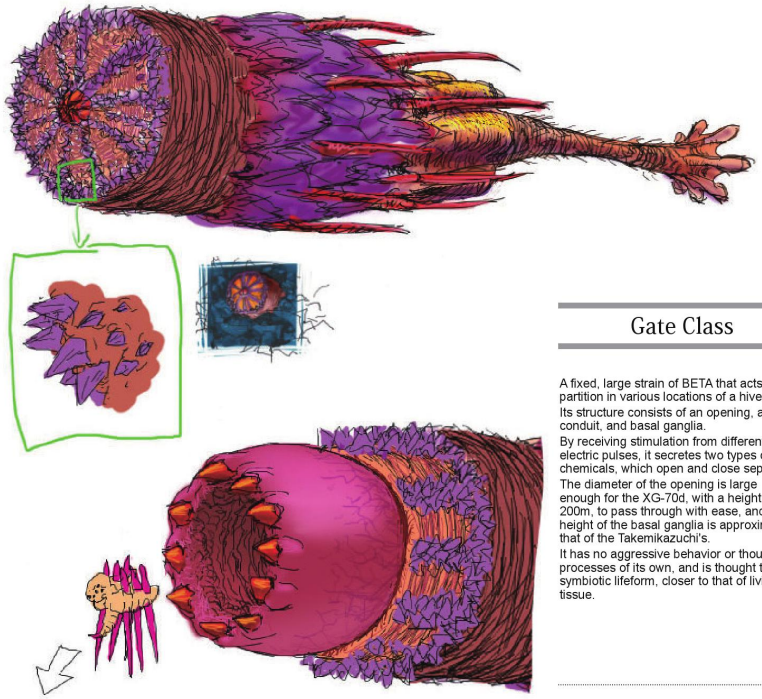


Carrier Class

The largest individual strain of BETA, first confirmed to exist during Operation Cherry Blossom. It is capable of tunneling underground at a high speed.
At its tip is an organ resembling a mouth, which opens to release not only Destroyer and Grappler classes, but even Fort classes stored within its body.
A vibration pattern similar to the waveform recorded during Operation Cherry Blossom was identified during Operation 21st and the Yokohama Base Incident. Therefore, it is assumed that there is a considerable amount of them inhabiting various locations around the world.

DATA (Estimated values)
Height : 176m
Length : 1800m
Width : 176m
Scientific name : Unidentified
Common name : Mega worm

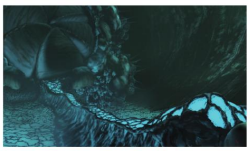




Gate Class

A fixed, large strain of BETA that acts as a partition in various locations of a hive's stab.
Its structure consists of an opening, a conduit, and basal ganglia.
By receiving stimulation from different electric pulses, it secretes two types of chemicals, which open and close septa.
The diameter of the opening is large enough for the XG-70d, with a height of 200m, to pass through with ease, and the height of the basal ganglia is approximately that of the Takemikazuchi's.
It has no aggressive behavior or thought processes of its own, and is thought to be a symbiotic lifeform, closer to that of living tissue.

DATA
Height : Unknown
Length : Unknown
Width : Unknown
Scientific name : Unidentified
Common name : ——



Heavy Brain Class

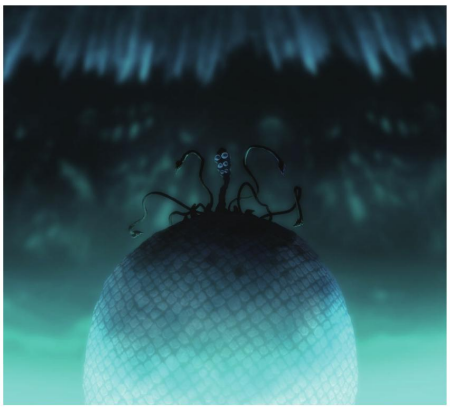
A superlarge Brain class, housed and fixed in the deepest part of the Original Hive.
Its existence had been theorized in many forms, yet it was only first encountered during Operation Cherry Blossom.
According to research conducted by Alternative 4 in the December of 2001, it was revealed that the megastructure that had been thought to be the hive's reactor was also a BETA class, called the 'Brain' class.
During Operation Cherry Blossom, it called itself the 'Superordinate', through an esper. It was then viewed with near certainty as the lone intelligent BETA at the top of the other Brain classes (reactors), and that it could give orders via an unknown communication method.
As it is not accompanied by any BETA other than the Gate class, it can be seen to have extremely high self-defense capabilities. In fact, it was able to destroy the XG-70d and a Takemikazuchi craft. It is also believed that the countless, large, tentacle-shaped organs are controlled by the head-shaped sensory organ, situated on the pistil-shaped tip.
An analysis of combat records shows that the tips of the tentacle-shaped organs are as hard as the forearms of the Grappler class or the armored shell of the Destroyer class. It has also been able to neutralize a Rutherford field, and has the ability to control the minds of people or computers it comes into contact with.

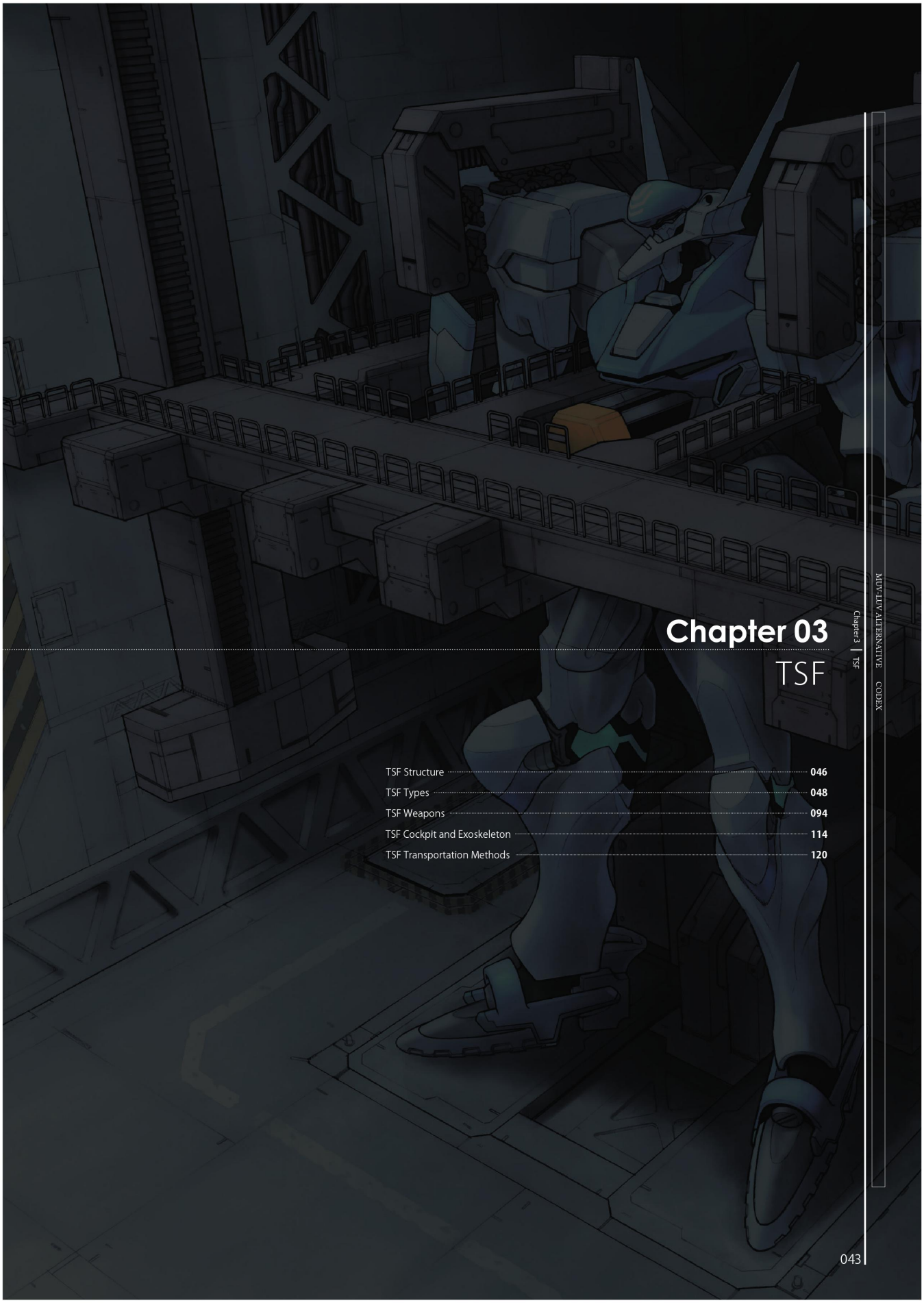
DATA
Height : Unknown
Length : Unknown
Width : Unknown
scientific name : Unidentified
Common name : Core
IJF strategic name : Target Alpha



Contact with the Heavy Brain Class

The biggest achievement of Operation Cherry Blossom was, of course, the destruction of the Original Hive's core.
However, an achievement greater than that short-sighted strategic victory was how A-01, which had infiltrated the Primary Objective, Target Alpha's block, had succeeded in establishing contact with the "superordinate" that oversaw the BETA.
This was the first communication between BETA and humans, and it opened up the possibility of further communication with BETA, which had been thought of as impossible.
However, all information related to this has been kept internationally confidential, though many rumors—far too many to count—have been spread about it worldwide, with one such rumor stating that "the contents of the returning Surface Pilot's report were so shocking that the UN security general fainted."
Although the details remain unknown, it is likely that the information gained from making contact with the "superordinate" revealed the goal of the BETA's invasion and the purpose of their existence—or at the very least acted as a significant clue.
Regardless, the information led to significant reforms of anti-BETA strategies after Operation Cherry Blossom, and there is no doubt that it will become the key to securing humanity's victory.





Chapter 03
TSF

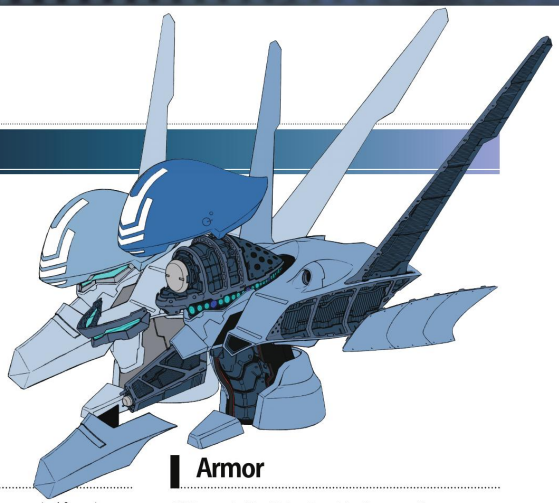
TSF Structure 046
TSF Types 048
TSF Weapons 094
TSF Cockpit and Exoskeleton 114
TSF Transportation Methods 120





Illustrated by
Sangoku Musou

TSF Structure



What is a TSF?

An abbreviation of 'Tactical Surface Fighter', TSFs were developed to fight BETA.
The TSF is a new conceptual weapon primarily used in combat where air support is unavailable. They have high mobility and can use a wide variety of armaments, as well as maintain combat for extended periods of time. These traits allow them to conduct three-dimensional combat across several environments such as cities, mountains, and even hive interiors.
On the other hand, craft such as the A-6 Intruder and the A-10 Thunderbolt II, which are primarily tasked with securing bridgeheads and clearing enemies, are called Tactical Surface Attackers (TSA).

Operational Concepts

The movements of a TSF are performed mainly with its legs and jump unit, which can operate regardless of the environment, be it a city, uneven terrain, or a hive.
Whereas their fuel-efficient main legs can be used for normal movement, using a jump unit can allow them to perform jumps, creeping flights, or sudden brakes. By using these two methods in conjunction, they are able to stay active for extended periods.
Furthermore, craft from the 2nd generation and beyond are designed with high centers of gravity, giving them better reaction time, due to being in a constantly unstable and unbalanced state. While stationary, these units maintain balance automatically by using their Operating System.
The wear on surface pilots is reduced with a combination of thought control, triggers, and pedals, to perform basic movements other than balance.

Motive Power

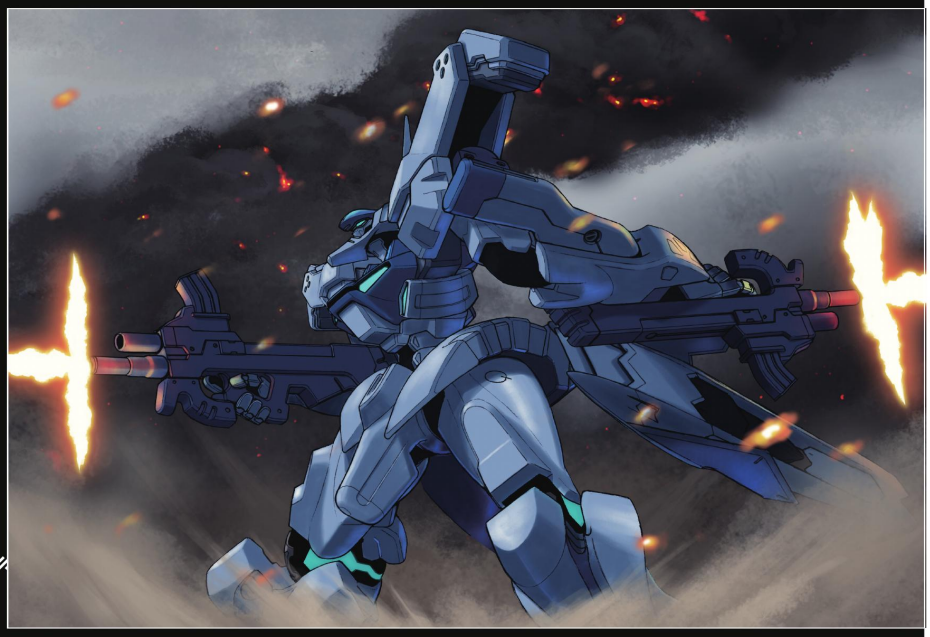
The TSF's main motive power is generated from two separate systems, the main engine and the jump unit.
The craft is designed around electromagnetic, expanding carbon bands (carbonic actuators), which expand and contract as voltage is applied. This electrical power is supplied from storage batteries and magnesium fuel cells.
The 'boost jump system', commonly referred to as the 'jump unit', uses jet fuel called 'propellant'.
The fuel tanks of the propellant are located inside the jump unit and the main legs. Furthermore, when conducting long-distance operations, or when the TSF needs to remain operational for a long time, fuel drop tanks are used.
As movements that require a large engine output, such as combat maneuvers, consume a large amount of fuel, Surface Pilots are expected to utilize recoil and the aerodynamic properties of their craft.

Armor

TSFs are built with heat-resistant composite armor, coated in laser vaporization film.
TSFs are mainly armored on their top half. This is not only to protect the cockpit and sensors that are prone to being hit, but also to raise the center of gravity of the craft with the armor's weight.

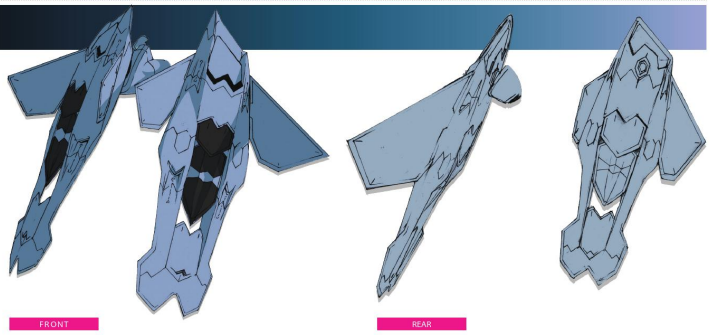
TSF Joints

Joints use a composite, multi-layered structure, and by also using carbonic actuators, they achieve a very high range of movement, and also excel at absorbing shocks.
By bending the elbow backwards, it is possible to cover blind spots during combat by firing behind the craft or attacking enemies pressed up against the craft.
Furthermore, the large armored plate on the craft's shoulder is equipped with its own sub arm to prevent it from interfering with the craft's movements.



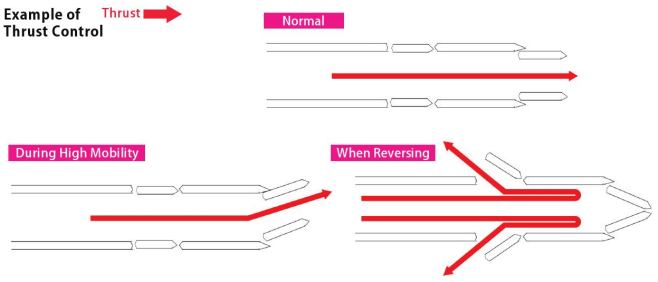
Boost Jump System

Rocket engines are suitable when needing an instant, powerful output, but they come with the problem of high fuel consumption.
On the other hand, jet engines are better in terms of fuel efficiency, but they cannot provide the instantaneous output of a rocket engine.
The TSF's boost jump system adopts a hybrid engine, in order to take advantage of both these engine's strengths.
It can be independently operated with an auxiliary arm, and allows for precise movement control by changing the direction of propulsion.
Furthermore, in emergency cases where the jump unit is damaged or malfunctioning, it is possible to jettison it.

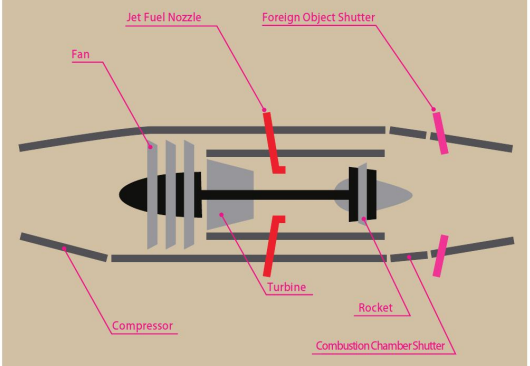


Propulsion Control Diagram

The jet or rocket's exhaust gases propel the craft forwards when released.
However, it is possible to gain thrust in the opposite direction by using a thrust reverser to send the gas in the other direction.

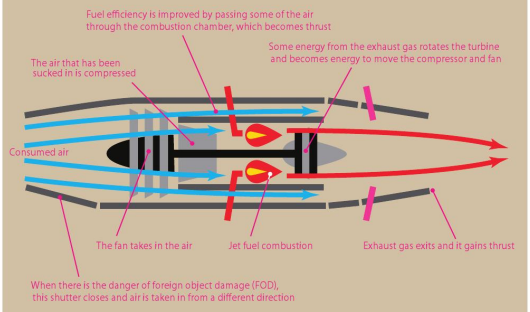


FE79 TSF Engine Schematics



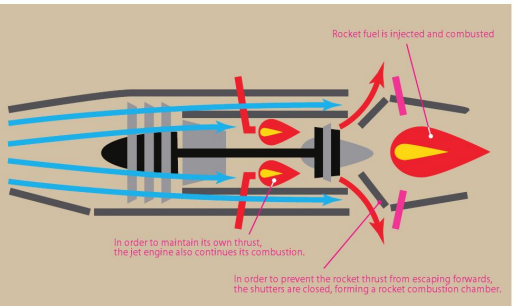
Jet Engine Combustion

Standard combustion of the jet engine is used in situations such as cruise flight. It acts in an almost identical fashion to a standard turbo fan engine.



Rocket Engine Combustion

The rocket engine is ignited when performing emergency maneuvers.
It can be compared to a turbo fan engine with an afterburner, but with a rocket igniting instead of the afterburner.
By closing the shutter when the rocket is ignited, a temporary rocket combustion chamber is formed. However, if the jet engine is turned off during this time, the combustion's efficiency declines. Therefore, even when the combustion chamber is formed, the jet engine continues to operate in an idle state.



GEKISHIN

撃震



1st Generation
Tactical Surface Fighter

US Armed Forces
F-4 Phantom [McDaell]

IJF
Type 77 TSF
Gekishin (F-4J/TSF-Type 77) [Fugaku, Mitsuhishi, Kawazaki]

The Birth of Mankind's First TSF

The McDaell F-4 Phantom is humanity's first proper anti-BETA surface weapon.

In 1967, the Westridge Committee, an extraterrestrial lifeform response committee consisting of House of Representatives and Senate councilors, advised the Department of Defense to carefully inspect the combat records of everything from the Sacrobosco Incident to its aftermath.

The Department of Defense became certain that the existing space weapons in the war with the BETA lacked the ability to decide the outcome of combat. They then submitted a report that strongly appealed for the full-scale development of space weaponry to the Council.

The US government took the contents of the report seriously, and implemented the Westridge policy, which had become a military-industrial alliance, to launch a large number of programs for anti-BETA space weaponry development.

One such program, the NCAF-X Program, sought to apply the technological theories and structures of the space construction-use large MMU (Manned Maneuvering Unit) in order to develop a conceptual and versatile surface combat weapon for extraterrestrial environments. McDaell, an aerospace manufacturer, was chosen to lead the program, as they had experience in producing and developing extra-vehicular use exoskeletons used in space development. They were faced with many problems, like needing to change the craft's specifications for use on Earth after the Moon's condition worsened, but eventually completed the new conceptual anti-BETA weapon, the F-4 Phantom.

In 1973, the construction of the Original Hive began in the Xinjiang Uyghur Autonomous Region, in China. The Chinese Armed Forces responded, but were overwhelmed, not only by the appearance of the Laser class BETA, which neutralized their air power, but also by the sheer numbers of BETA. They suffered a devastating blow alongside the Soviet Armed Forces, which had come to support them. This defeat marked the beginning of the BETA's westward advances through Eurasia.

In the following year, as the front continued to be pushed back, the F-4 Phantom was deployed into combat as mankind's first TSF.

The F-4 boasted features from various branches of the military, such as the ease of deployment, mobility, and maneuverability of aircraft, as well as the suppressive and supporting abilities of tanks. Though it earned a poor reputation among air force pilots, unsure of its new concept, it had succeeded in preventing mankind from needing to retreat further.

Variations of the F-4 Series

Many refurbishments of the F-4 exist, with productions under license being conducted worldwide, as a reflection of each country's specific needs.

The IJF's Type 77 TSF F-4J Gekishin, which commenced licensed production in 1976, has a specialized mount pylon for use with a close combat melee blade. It also had its joints and various parts of its airframe reinforced, especially around the main arm.

Over the production period of the F-4J, there have been repeated refurbishments to fine parts, and these versions are differentiated by being called 'Blocks'. As of 2001, the newest type is designated as Block 214. The UN specification model, operating in Japan, is loaded with the new XM3 OS developed by Alternative 4, and is provisionally differentiated as Block 215.

The Empire of Japan domestically developed the Type 82 TSF F-4J Kai Zuikaku as a further refurbishment of the F-4J for exclusive use by the Royal Guard.

They used many independently developed parts to increase the engine output, maneuverability, and mobility, as well as to strengthen its electronic equipment.

It secured higher specifications by lowering its maintainability and production potential.

In 2001, Mitsuhishi Heavy Industries prototyped the proof-of-concept craft F-4JX, an F-4J variant loaded with the XM3 OS (Block 215), and which has been optimized to 3rd-generation standards. With its implementation of OBL and refitted avionics, it was compared favorably against other 2.5th-generation craft in Mitsuhishi's internal tests.

These results were presented to the Imperial Ministry of Defense as a proposition to tie into the next era of TSF development, which was facing difficulties. However, this proposal was dropped in favor of a plan to conduct the same refurbishments to the F-15J Kagerou instead.

Several months later, the program was re-branded as the 'Super Phantom Program' and was proposed to countries across the globe using the F-4. With financial backing from the Foreign Ministry, it played a part in establishing the Empire's foreign influence.

The Soviet Union's F-4R commenced licensed production in 1974 as a cold terrain specification craft that could utilize preexisting armaments.

Its joints and airframe were reinforced so that it could wield tank cannons. The resulting increase in weight and decrease in mass production potential were offset by simplifying the sub arm which holds up the shoulder block armor.

These specifications reveal the state of the Soviet Union—even when prioritizing absolute production and deployment quotas of anti-BETA weapons, they were still forced to use old tanks which existed en masse.

Since the final refurbishment of the F-4R was significantly different in appearance and specifications, it was designated distinctively as the MiG-21 Balalaika.

Crowned with the name of the design bureau that developed it (Mikoyam Guluvich), the MiG-21 was the first domestically developed TSF of the Soviet Union. It was specialized for close quarters dogfighting, and by adding wire cutters to protect the head's main sensor, shrinking the shoulder block armor, and redesigning the leg armor, its weight was significantly reduced, and its operational time was increased.

It is perhaps best known as the TSF operated by the 43rd Tactical Armored Division's Volk Regiment, during the infiltration of the Minsk Hive in 1978. They were able to bring back data about the hive's structure, which up to that point was largely shrouded in mystery, and they projected the success of not only the F-4 Series, but the success of TSFs in general, to the world. The Jian-8, used by the Third United Front, is a further refurbishment over the MiG-21. Its head module has been armored and it adopts a round monitor. These specifications focus on survivability in close quarters combat.

The F-4E is McDaell's own refurbishment of their original F-4, which brings it up to quasi-2nd-generation standards. Its modernizations include refitting its avionics and engine, equipping an early laser attack warning device, and using heat-resistant armor with an anti-laser vaporization film.

The F-4 Continues Its Fight Worldwide

In the US, the home of the F-4 Phantom, all units have been withdrawn, with any craft still in good shape being sold off to other countries. On the other hand, countries around the world are still using variations of the F-4 on the front line. All of these refurbishments that allow the F-4 to be matched to each country's conditions were only possible by McDaell's foresight and their excellent fundamental design of the craft.

Furthermore, the stagnation of the BETA invasion after the appearance of the F-4 is a testament to how much of a revolutionary weapon TSFs had been.

The fundamental technology gained during the F-4 Phantom's development, and the combat experience of the Surface Pilots who fought alongside the F-4, would significantly impact the development of the 2nd generation of TSFs and beyond.

PLAY BACK ALTERNATIVE



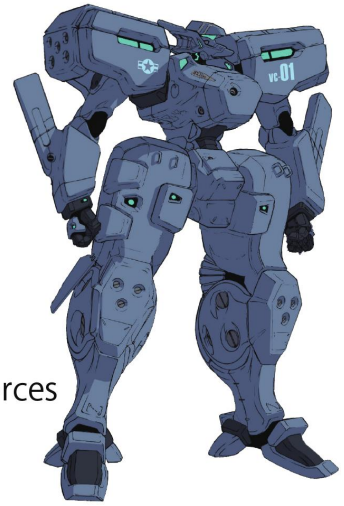
1. During the 12-5 Incident in the Empire of Japan, the UN approved additional reinforcements of the US Armed Forces to Yokohama Base. The Empire of Japan warned that this forced intervention infringed on their sovereignty and dispatched a unit to surround the base.
In the background of this image, the IJF owned F-4J and F-15J can be seen. In the foreground, the UN's F-4J from Yokohama Base can be seen.

2. F-4Js from the IJF and the Coup Forces fought against one another during the 12-5 Incident in the Atsugi/Odawara Region.

3. The IJF Tactical Armored Regiment's F-4J was active on the front line during Operation 21st, which sought to suppress the Sadogashima Hive. The F-4J piloted by 2nd Lieutenant Isumi Akira of the IJF 'Whiskey Unit', which had landed on the Yahata Dunes, was attacked by Grappler-class BETA. She narrowly escaped after being saved by Takemikazuchi from the Imperial Royal Guard 16th Group.
This episode is explored in 'Muv-Luv Chronicles ~Inheritance~'

4. The IJF F-4J that entered the drifts of the Sadogashima Hive during Operation 21st. Immediately after, the unit was wiped out by a BETA assault.

5. During the defense of Yokohama Base, which was under attack by BETA, the F-4Js from the UN Forces Tactical Armored battalions were deployed. A fierce battle was fought against the BETA, both inside and outside of Yokohama Base.



US Armed Forces
F-4 Phantom
[McDaell]

Mankind's first TSF was developed by McDaell, an American corporation. At the time of its deployment in 1974, the CIWS-1A (Short Blade) and WS-16 (Assault Cannon) were simultaneously adopted as supporting armaments.
The WS-16 used at this time was an early model, consisting of a 20mm autocannon and a 105mm smoothbore cannon. However, the WS-16C, which was adopted on the F-14 Tomcat in 1982, swapped out the 105mm cannon, which lacked offensive power, with a 120mm smoothbore cannon. Following this, the combination of 36mm and 120mm became the standard for TSF assault cannons.
It had been used by the US Army, Navy, and Marines, but as of 2001, all craft have been withdrawn to be resold overseas.
Starting with the B Type, which was made compatible with data links, and the F-4N, whose increased accuracy extended its lifespan, many variations exist, such as those tailored to the specifications of individual countries, or those modified by field engineers.

SPECIFICATION	
Model Number	F-4
Generation	1st
Year of Deployment	1974
Manufacturer	McDaell
Jump Unit Engine	FE79-GE-2A
Height	17.1m



IJF
Type 77 F-4J Gekishin
[Fugaku, Mitsuhishi, Kawazaki]

The F-4J Gekishin was the IJF specification craft of the F-4 Phantom and commenced combat deployment in 1977. Because IJF specifications focused on having a melee blade and for close quarters dogfighting, its mount pylon system was expanded, and the craft's main arm joints and manipulators were strengthened. Although several decades have passed since its initial deployment, refurbishments from the manufacturers allow it to maintain front-line capabilities (as of Block 214), though the IJF conducts further, independent improvements. The latest production type demonstrated a performance comparable to the foreign F-4E. Furthermore, by implementing an independently developed laser attack warning device, which had been adopted onto the F-4J Kai Type 82 Zuikaku, as well as using low-weight composite armor and refitting its avionics, it has been reborn into a completely different craft from the original F-4. As of 2001, production has finished, and they have withdrawn from their position as the IJF's main frontal force, and are now primarily serving as base defenders.

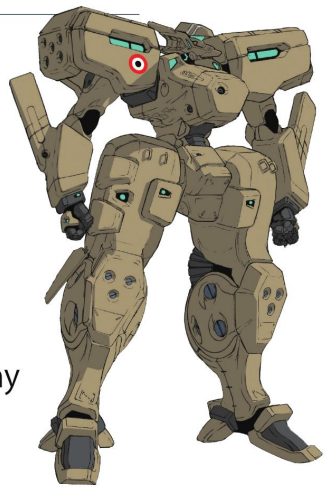
SPECIFICATION	
Model Number	F-4J/TSF-Type77
Generation	1st
Year of Deployment	1977
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE79-FHI-17A(E Type Equivalent)
Height	17.1m



UN Forces
Type 77 TSF Gekishin
[Fugaku, Mitsuhishi, Kawazaki]

The F-4J, in UN colors, operated by the UN Forces in Japan. In accordance with the agreements of the Alternative Program, facilities and equipment, such as these craft, were supplied to the UN by the IJF.
In unofficial records of the 12-5 Incident, the commander of the 207th Tactical Armored Platoon piloted a Type 77 that had been retrofitted with the new OS, and defeated the cutting-edge Type 94 Shiranui, thereby demonstrating that the Type 77 possessed high latent abilities.

SPECIFICATION	
Model Number	F-4J/TSF-Type77
Generation	1st
Year of Deployment	1977
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE79-FHI-17A(E Type Equivalent)
Height	17.1m



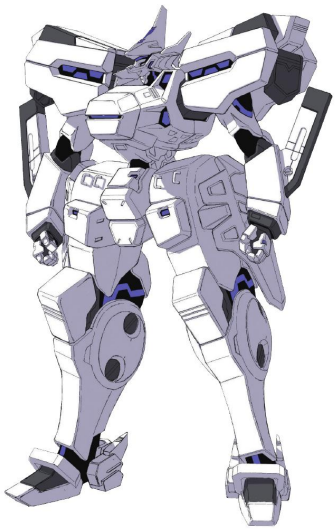
Egyptian Army
F-4E
[McDaell]

The final production model of the F-4 with specifications meant to be adapted to desert combat.
By refitting its avionics and jump unit engine, and reducing the weight of the armor material, it has been granted quasi-2nd-generation capabilities.
It boasts the reliability coming from the fact that almost 30 years had passed since the deployment of the initial model, and also boasts high specifications appropriate for the title of a final production model.
It currently sees operation not just in the Egyptian Military, but also in the Israeli, Turkish, and some African Militaries. Other than protecting against heat, the desert combat specifications also make it sand-proof and dust-proof.

SPECIFICATION	
Model Number	F-4E
Generation	1.5th
Year of Deployment	1981
Manufacturer	McDaell
Jump Unit Engine	FE79-GE-17A
Height	17.1m

Imperial Japanese Royal Guard
Type 82/F-4J Kai 'Zuikaku'

[Fugaku, Mitsuhishi, Kawazaki]



Based on the F-4J Gekishin, the F-4J Kai Zuikaku is a 1.5th generation craft that has been significantly refurbished for exclusive use by the Imperial Japanese Royal Guard. In 1978, the Shogunate ordered three companies, Mitsuhishi, Kawazaki, and Fugaku, to develop a craft exclusively for the Royal Guard, which was under their command.

However, as the license production of the F-4J Gekishin had just commenced, it was impossible for Japan's military industry to meet the Shogunate's request of a purely domestic development alone, so the companies instead proposed refurbishments to the F-4J. The Shogunate reluctantly agreed to the F-4J refurbishment proposal, on the condition that the improved model would out-perform the Gekishin in dogfighting.

The three companies thoroughly gathered and analyzed all of the data gained from the European front, including the lessons learned in combat by Surface Pilots. By reducing the weight of the armor, and redesigning various modules, the total weight of the airframe was reduced by approximately 20%. They then collected refurbishment plans to improve maneuverability and mobility, as well as the laser attack warning sensors. Development commenced in 1979.

A trial using a test craft completed in 1981 identified a slight reduction in operational time from the increased engine output, but on the whole, it was a resounding success, and its mass production was approved. In the follow year, it was given the official designation of Type 82 and the nickname 'Zuikaku' and began to be distributed to the Royal Guard.

The experience and technology gained from developing the Zuikaku was reflected in plans to upgrade the Gekishin. This greatly contributed to raising the standard of the IJF combat capabilities and became the foundation for the next generation of TSF development.

In 2001, there were delays in preparing the Type 00 Takemikazuchi to become the new mainline successor. As a result, all Zuikakus belonging to the three Royal Guard regiments were given a net upgrade by being downgraded to F-4Js before being modified up to Block 214 specifications.

There are four types of variations, each of which have corresponding airframe colors.

- Type 82R (Purple): A special craft only the Shogun is allowed to board.
- Type 82R (Blue): A special craft granted to those from the Five Regent Houses, or to relatives of the Shogun.
- Type 82F (Red): A high output, high mobility specification craft granted to those from influential warrior houses closely associated with the Five Regent Houses.
- Type 82F (Yellow): A high output, high mobility specification craft granted to those from the Fudai warrior houses.
- Type 82A (White): A high mobility specification craft granted to those from warrior houses.
- Type 82C (Black): A standard model, used by normal Surface Pilots in the Royal Guard.

Each component is designed with a focus on dense close quarters combat. Such design choices involve wedge shaped beaks on the shoulder and knee block armor, as well as on the heels, making them suited for striking. Essentially, its form can be seen to have led to its successor, the Takemikazuchi.

Thrust has been improved by 20% compared to the initial F-4J. As of 2001, all F-4 derivatives in Japan have been given the same upgrades to their jump units. Though subtle, the redesign of the knee joints is a large point of improvement. The Gekishin's knee joint consists of a flexible, laminated, resin armor reinforced by armor structured like bellows, but the Zuikaku replaces both with a mobile, armored flap, which was common among 1.5th generation crafts.

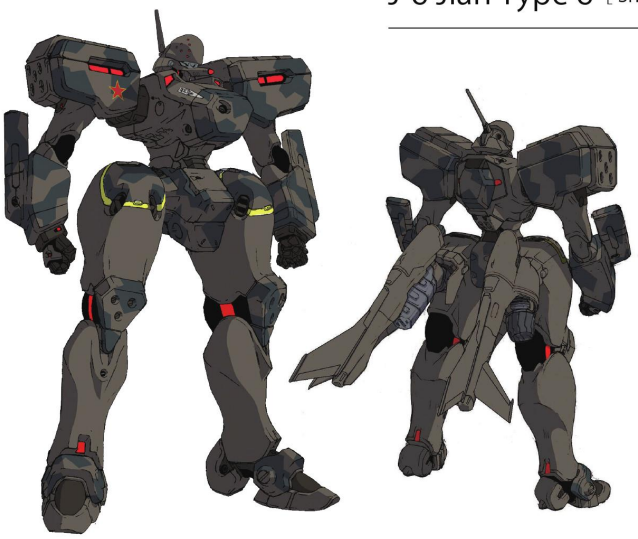
Many design changes were implemented to reduce the rate of crafts taking damage, such as developing new materials to significantly increase the toughness of the resin armor, and weight reductions to increase mobility and maneuverability.

SPECIFICATION

Model Number	F-4J Kai/TSF-Type82
Generation	1.5th
Year of Deployment	1982
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE79-FHI-17A
Height	17.9m

富钺重工業
光菱重工
河崎重工

Third United Front
J-8 Jian Type 8 [Shenyang]



The first generation, mainline craft of the Third United Front. (At the time of deployment, it was still the PRC Army). It was originally based on the MiG-21 Balalaika, which was provided by the Soviet Union.

The MiG-21 itself was originally based on the F-4R, a Soviet specification F-4 that was mainly refurbished for cold weather climate. However, the Soviet Union's circumstances required a TSF with better abilities in close quarters dogfighting, and so the F-4R underwent weight reductions to create the MiG-21, which also had better maneuverability and mobility.

Like the Soviet Union, China also had many hives erected in its territory. China chose to import the MiG-21 since it suited the situation of the nation far better than the all-rounder F-4, before starting to conduct further independent refurbishments.

The protective wire cutter, a distinguishing feature of all Soviet TSFs, was removed from the cover of the main sensor on the head, and was replaced with armor and a round monitor, in anticipation of even harsher close quarters combat.

This specification, unique to Chinese crafts, sought to reduce the risk of the monitor being destroyed, and it earned favorable ratings, even in combat. It would later become a permanent feature of Chinese crafts.

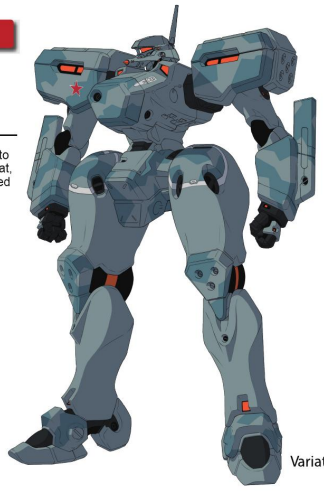
Ever since China and Taiwan established the Third United Front, they have operated a mix of both Western and Eastern crafts. However, the Jian-10 has had the same improvements made to its head, despite being developed from Western technology (specifically, the F-16 Fighting Falcon).

SPECIFICATION

Model Number	J-8
Generation	1st
Year of Deployment	1976
Manufacturer	Shenyang
Jump Unit Engine	K-25-300
Height	17.7m

Soviet Armed Forces
MiG-21 Балалайка (Balalaika)

[Mikoyam Guluvich]



A refurbishment and redesign of the F-4R, the MiG-21 was deployed in 1975 as the Soviet Union's first domestically developed craft.

To meet the requested specifications for a craft specialized in close quarters combat, it underwent thorough refurbishments for weight reduction, centered around simplifying its shoulder and leg armor. The shape of the tail fin on its jump pack was also changed, to give the craft more mobility and maneuverability.

Following this, the head module was also reduced in size to lower the risk of it being destroyed in close quarters combat, and the signature Soviet protective wire cutter was attached to the front of the main sensor cover.

Furthermore, adaptations to local areas was considered during design stages, seeing as Soviet territory encompassed everything from polar regions to desert.

SPECIFICATION

Model Number	MiG-21
Generation	1st
Year of Deployment	1975
Manufacturer	Mikoyam Guluvich
Jump Unit Engine	K-25-300
Height	17.7m

МИГ

F-15 STRIKE EAGLE



2nd Generation
Tactical Surface Fighter

US Armed Forces
F-15E Strike Eagle [McDaell Doglam]

IJF
Type 89 TSF
Kagerou (F-15J/TSF-Type89) [Fugaku, Mitsuhishi, Kawazaki]

The Lessons of Operation Palaiologos

Conducted in 1978 in Eastern Europe, the greatest achievement of Operation Palaiologos was in obtaining the Volk Data—hive exploration data which would later help in Surface Pilot training. However, when the US carefully inspected this data alongside combat lessons from the operation, they became aware of the need for a new generation of TSFs, more suited to anti-BETA combat, and commenced looking into the specifications of the next mainline craft, the 'TSF-X', to replace the F-4.

Analyzing the operation's overall combat records revealed that 63% of TSF losses incurred prior to the entering of a hive were caused by the Laser-class BETA. From the combined analysis of overall damage, they reached the conclusion that they would need to overhaul their design concepts, which up to that point had been focused on armor.

Even if armor technology could advance to the point of being able to withstand laser attacks, it would come at the cost of significantly increasing the craft's weight, and therefore lowering its maneuverability. These changes would make it impossible to avoid attacks from medium-sized BETA strains such as the Destroyer and Grappler classes. Furthermore, it was self-evident that reducing maneuverability would make a craft more prone to Tank-class attacks.

The Next-Era TSF Research Department Unit and the BETA Crisis Management Team, both from the Department of Defense, analyzed the Alternative program's research data on the Laser class and began to shift their way of thinking. This data showed that there were fixed time lags in reaching the maximum irradiation output of the laser as well as its refiring. The Department of Defense concluded that it would not be impossible to dodge the light-speed laser attack, so long as the low output stage was detected, and the positions of individual Laser-class BETA on the battlefield were ascertained. They then consulted with the leading manufacturers, asking them for their proposals for the TSF-X, while encouraging that as a next-generation craft, it should focus on improving mobility and maneuverability.

From all of the detailed plans that had been submitted by various companies in response to this new paradigm, McDaell Doglam's proposal was approved, eventually bearing fruit in 1984 as the F-15 Eagle, which would be formally adopted by the US Army.

The reasons why 2nd-generation craft, starting from the F-15 Eagle, are able to reach such a high mobility include increases in engine output, decreases in the weight of the craft and its jump unit, and advances in avionics and computers.

This technology allowed craft to be stabilized by computer control, since they had been intentionally designed with low stability, in order to increase mobility. With this technology, which realized the underlying concepts of OBW (Operation By Wire), 2nd-generation TSFs could finally be considered pure anti-BETA weapons, in the truest sense.

Due to its excellent performance, the quantities produced of the F-15 were second only to the F-4, and it sees extensive use not only in the US Armed Forces, but in militaries around the world. Even the Empire of Japan, which is on the front line of the Far East, has been conducting licensed productions of the F-15J Kagerou since 1989.

Strike Eagle: The Strongest 2nd Generation TSF

The initial production model, the F-15A, lacked enough propellant to be able to fully exert its mobility throughout an entire operation, and the output of its fuel batteries was barely passable.

The main cause of this was the prioritization of meeting 2nd-generation standards, and to ready the craft for combat deployment as soon as possible. This problem is highlighted when noting that even though the airframe is slimmer compared to the F-4 Phantom, the fuel battery and the engine technology hadn't improved.

The later production model, the F-15C, accounted for these problems by swapping to newer types of fuel battery and engine technology developed through breakthroughs and innovations. However, these were not seen as improvements more than the craft fully maturing into its originally conceptualized capabilities.

The redundancies placed into the designs are nothing more than proof that the designers had accurately predicted the advances that would take place with the craft's peripheral technology.

Furthermore, in 1995, that foresight would build an even stronger impression - one with worldwide appeal.

In 1990, the ATSF Program selected the YF-22 as the next era mainline TSF to succeed the F-15 Eagle. However, the F-22A's production schedule was left meandering due to problems with adjusting it for mass production and a decline in the number of craft to be procured, lowering its priority.

Contrary to the G-Bomb doctrine of the time, the US Army earnestly wished to increase the abilities and numbers of TSF. They decided to modernize preexisting designs of units, setting up the Dual Role TSF Development Program (DRTSF), which would compensate for the delays in the next-generation renewal of US Military craft. McDaell Doglam's F-15E Strike Eagle was comparatively reviewed against General Dynomics's F-16XL.

During the DRTSF, the fate of the F-22A Raptor remained uncertain. As a result, technology gained from the ATSF Program were transferred to the DRTSF Program. One example of this is the F-22A Raptor's non-stealth specification jump unit being adopted as the F-15E Strike Eagle's jump unit. Later, all F-15s were renewed in this manner.

The DRTSF Program decided to adopt the F-15E, and it became well known as the 'Strike Eagle', the development name given to it by its manufacturer.

The main decision to adopt it was not due the survival rates and operational time, rather, that the F-15E Strike Eagle had lower development and production costs compared to the F-16XL. Whereas the F-16XL would have required a large-scale, all-round refurbishment of the craft, the F-15E's exterior did not require many alterations, and there were comparatively few design changes.

20 years later, the foresight of the F-15 Eagle's design concept and excellent fundamental design would be proven once again.

That being stated, the F-15E Strike Eagle had significant improvements made to sections that are not immediately visible. Although the only changes to the exterior design involved strengthening the armor's material, the avionics were thoroughly improved, and almost all of its component parts had been exchanged for the newly designed ones.

The structures of many of the component's interiors had also been changed. Overall, although the craft's basic design remains unchanged, it wouldn't be an overstatement to call it a completely different craft, when looking at its specifications and equipment.

The F-15E Strike Eagle commenced its deployment from 1995, with not just its specifications or combat capabilities as its key features. It boasted a reliability that was backed by accumulated knowledge and experience. Its high maintainability and lower operational costs were supported by sharing parts among countries importing the F-15 Eagle. Finally, its expandability can be seen by having equipment still being developed for it to this day. Overall, it holds superiority in many aspects, even when compared to 3rd-generation craft. Its title, 'The Strongest 2nd-Generation TSF' is by no means just for show.

Development of the F-15 Continues

After a takeover of McDaell Doglam, US manufacturer Boening also took over the production and maintenance of the F-15 Eagle. They proposed the 'Phoenix Initiative' to upgrade other countries' F-15s to quasi-3rd generation standards by just refitting the avionics and modules. Two F-15 ACTVs were then rolled out as proof of concept craft. Boening then collaborated with Japan in the XFJ Program.

From the experiences gained from the program, they completed the 3rd generation standard craft, the F-15SE Silent Eagle, in 2002. This craft had improved close quarters combat capabilities, and although limited, also featured stealth capabilities.

The Eagle, the absolute strongest, has been reborn three times, and will continue to spread its wings over the world's battlefields.

PLAY BACK ALTERNATIVE







1. These IJF units are surrounding the base, during the 12-5 Incident. They're wary about the US Armed Forces being stationed at the UN Yokohama Base.

The craft on the left is the F-4J and the one on the right is the F-15J.

2. During Operation 21st, the F-15Cs and F-15Es of the UN 6th Orbital Drop Corps (Orbit Divers) infiltrated the Sadogashima Hive.

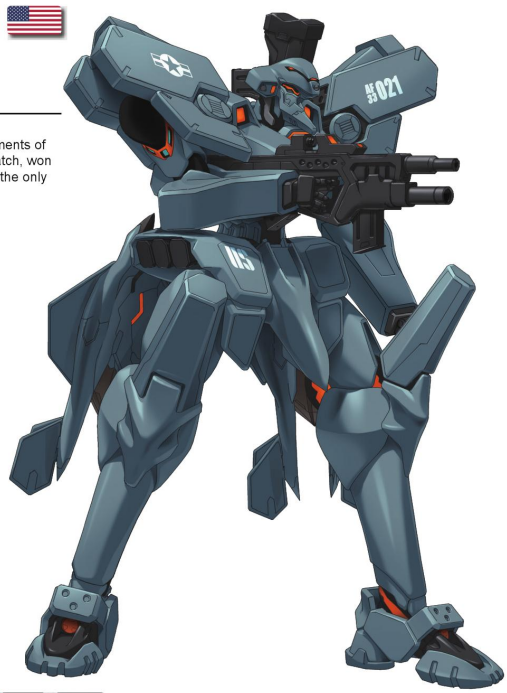
The operation went smoothly at first, with the Sauber Squadron occupying the 12th stratum of the Hive, but they were then wiped out by a sudden BETA assault.

3. F-15J units belonging to the UN Force defend Yokohama Base from a BETA assault.

The F-4J can be seen in the distance.

US Armed Forces F-15E Strike Eagle

[McDaell Doglam]



Although its appearance is almost indistinguishable compared to the F-15 Eagle, it not only adopted composite armor and modernized its jump unit, but it had a complete revision to its internal composition, with all of its avionics being refitted, and has also had all of its internal parts renewed.
Both its mobility and armament mounting capacities have been significantly improved, and by virtue of its new technical aspects, it has been classified as a 2.5th-generation craft, or even a quasi-3rd-generation craft by some.

Compared to craft that were merely refurbishments of the F-15, the F-15E, which was built from scratch, won in terms of cost performance, and is currently the only F-15 variant being manufactured.

SPECIFICATION	
Model Number	F-15E
Generation	2.5th
Year of Deployment	1995
Manufacturer	McDaell Doglam
Jump Unit Engine	FE100-PW-220
Height	18m





The F-15 conducting mock combat at Yukon Base. 3 F-15Es and 1 F-15 ACTV participated in the 'CASE: 47' exercise.

UN Forces F-15C Eagle

[McDaell Doglam]



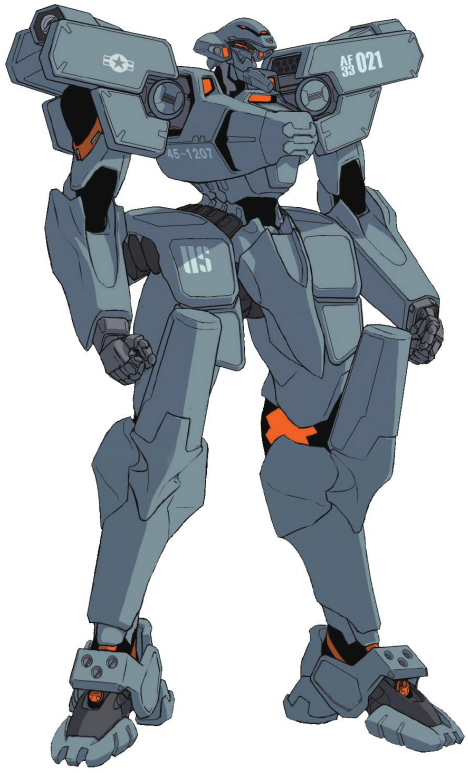
The F-15C Eagle has been exported to and produced under license in many countries around the world. It is deployed in higher numbers in the UN forces, compared to other craft, in locations across the globe. In the story, the F-15C in UN colors appears in operations such as Operation 21st.



During Operation 21st, F-15C and F-15E craft infiltrated the hive interior using orbital drop tactics. However, they were wiped out after encountering greater numbers of BETA than expected.

SPECIFICATION	
Model Number	F-15C
Generation	2nd
Year of Deployment	1984
Manufacturer	McDaell Doglam
Jump Unit Engine	FE100-PW-200
Height	18m

US Armed Forces
F-15C Eagle
[McDaell Doglam]



The F-15C Eagle saw the highest production numbers out of the entire F-15 series.
Compared to the initial production model, the F-15A, the F-15C boasts many upgrades. These include an improved operational time, an increase in capacity for high mobility movements through the updating of fuel cells and the jump unit's main engines, and an expanded functionality in, as well as the strengthening of radar capabilities.
The F-15B and F-15D are the identification names of the A and C types respectively, which were retrofitted with multi-seat control units.

SPECIFICATION	
Model Number	F-15C
Generation	2nd
Year of Deployment	1984
Manufacturer	McDaell Doglam
Jump Unit Engine	FE100-PW-200
Height	18m



IJF
Type 89 TSF Kagerou
[Fugaku, Mitsuhishi, Kawazaki]

The Type 89 (F-15J) Kagerou is a Japanese specification of the F-15C, produced under license by Mitsuhishi Heavy Industries. Initially, twelve early models were imported under the pretense of usage as test units, and formally adopted as mainline craft if successful. These craft had some of their electronic armaments and internal components changed into those of Japanese make, but they were not refurbished to meet Japanese specifications regarding the use of melee blades.
This is because in reality, these craft had been imported to research development techniques that would assist in the creation of a domestic 3rd-generation craft (later to be the Fubuki and Shiranui), which had been facing difficulties.
As research on the F-15 Eagle continued, the Imperial Ministry of Defense confirmed that the domestically produced craft would be delayed, seeing as the F-15 eclipsed existing Japanese technology, and an additional 188 craft of it were hurriedly ordered.
After McDaell Doglam applied the design changes to meet Japanese specifications, the F-15J was deployed, along with the original 12 imports that had been refurbished to Japanese specifications. There were numerous changes involved to meet these specifications.
The TSF combat OS was changed to a Japanese version, created for use with close quarters dogfighting armaments. The endurance of the airframe and joints were increased by using new materials. The buffering tension of the carbonic actuator was strengthened. Finally, the mount pylon's design was changed to accommodate for the Japanese Type 87 Assault Cannon.
Following the mass production of the Shiranui in 1992, the procurement of the F-15J began to fall, and by 1999, the production of new craft ceased. Since then, only servicing parts continue to be produced.

SPECIFICATION	
Model Number	F-15J/TSF-Type89
Generation	2nd
Year of Deployment	1989
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE100-FHI-200
Height	18m

SHIRANUI

不知火



3rd Generation
Tactical Surface Fighter

IJF
Type 94 TSF
Shiranui (TSF-Type 94) [Fugaku, Mitsuhishi, Kawazaki]

The Road to a Purely Domestic Japanese TSF

In 1983, the Imperial Ministry of Defense commenced the selection of the next mainline TSF. Billed as the '2nd TSF-X', the program aimed to reach practical realization by 1988, in five years' time. The program was constantly adjusted while importing licensed cutting-edge technology from the US, such as the F-14 Tomcat, F-15 Eagle, and the F-16 Fighting Falcon.

At the time, much of the Eurasian continent was retreating under the BETA's constant pressure. As the leader of NATO, the US raised the defense of Europe as integral to the anti-BETA strategy, and had moved away from supporting East Asian territories, where the degree of urgency was comparatively lower.

The IJF and the Ministry of Defense were still bitter over the F-4 Phantoms that were diverted to Europe, and even during the 2nd TSF-X Program, they started to believe that there was no future certainty that the US would continue to consistently supply equipment. Even within the Imperial Diet, a movement for the TSF-X to be domestically developed was gaining momentum.

Under this amount of pressure, the government, though unable to distance themselves from the US from a national defense perspective, allocated a budget to their domestic 'Youkou Program', under the guise of 'TSF Technology Research'.

This national project was undertaken in secret, and not as a competition, but as a collaboration between Kawazaki, Fugaku, and Mitsuhishi, which had the technological accumulations and the reliability from having license produced the Type 77 Gekishin (F-4J), and having developed the Zuikaku (F-4J Kai).

However, soon after commencing the project, the three companies hit a large problem: The performance requirements set by the Ministry of Defense in regards to the TSF-X were too high compared to the state of Japan's TSF development potential.

When developing a new craft, an obvious requirement is for it to have specifications and capabilities that would not become obsolete within 10 years of its deployment. Furthermore, because the Empire of Japan is limited in its human capital and material resources, each individual craft would need to be of exceptional quality, in order to become the next mainline craft.

The Ministry of Defense requested specifications that were clearly based on the ATSF Program, but imbued with Japan's own unique operational concepts. Firstly, the craft needed a new type of armor material that would reduce the craft's weight and able to withstand ten seconds of laser irradiation. Next, mobility and maneuverability needed to be improved by increasing the capabilities of the mounted computer and OS, as well as by introducing optic fiber. Additionally, a more aerodynamic design of the airframe would be required to increase mobility and fuel efficiency. Finally, the ability to share and communicate combat zone information (what would later be named the 'Tactical Data Link') would need to be strengthened. However, for these specifications to be met, the three companies would need to develop innovative technology that weren't seen even on state-of-the-art American craft.

The main objective of these developments was for the craft to meet 3rd-generation standards, but this was a tall order, given that the Japanese manufacturers hadn't even developed, let alone manufactured, a 2nd-generation craft.

Japan would need technology beyond those strictly from TSF development, and the development of the new composite armor provides one such example. It was originally developed in space development programs, such as the Prometheus Program, and the technology was smoothly transferred to TSFs by using the same material engineering techniques. The composite armor was able to provide higher mobility and maneuverability due to being lighter than existing armor. However, this created an extremely unstable craft that couldn't be controlled properly - it was essentially a faulty product. What was also needed was a new OS, or high-level avionics, but developing these proved unimaginably difficult. The Youkou Program had essentially been changed into a research and development program for a wide range of fundamental technology. The three aforementioned companies steadily accumulated knowledge that was unique to Japan, and built the foundations for the domestic development of 3rd generation TSFs.

In 1985, the Domestic Next Generation TSF Development Research Agency, belonging to the Ministry of Defense, had grown frustrated that even after many years since the commencement of the program, there was no progress in the craft's fundamental design. They presented a breakthrough strategy to the Ministry of Defense to import four complete craft of the F-15C Eagle from the US and to also trial produce eight F-15Cs domestically, under the guise of testing them as candidates for the next-generation mainline craft. The plan was approved after months of consultation.

These labors sought to absorb development processes and techniques by studying and producing under license the F-15C Eagle. The licensed production and transfer of technology progressed smoothly, receiving encouragement from America's paradigm shift away from TSFs.

The Domestic Next-Gen TSF R&D Agency wholly acknowledged the large gap in technology and knowledge as they continued their research into the F-15C. They decided to import a further 188 of the F-15J to prepare for the new mainline successor to be introduced, which gave the three development companies more time to conduct fundamental research.

Furthermore, they also strengthened their cooperation with Europe by secretly exchanging technology with them, since Europe also emphasized close quarters combat in TSF design. The Agency would then immediately apply any data collected, from both Mitsuhishi and the military, for the production and operation, respectively, of the F-15J. This created a strong sense of unity between the private and military sectors.

The companies' steady development would eventually bear fruit in February 1994, when the mass production Craft 1 of the Type 94 TSF Shiranui was transferred to the IJA Combat Technology Research Unit. Not only was the Shiranui the first TSF to be purely domestically developed by Japan, it was also the world's first 3rd-generation TSF to be deployed.

Following this, the Shiranui was steadily deployed to frontline forces, replacing the F-4J Gekishin.

In order to fulfill the high requirements, the Shiranui sacrificed its expandability during its design stage, and future attempts to upgrade its hardware would prove difficult.

Due to this, most refurbishments focused on improving software. Still, since its performance and maintainability were both high, it was highly renowned, even the front line. Several programs would later be launched, such as the US-Japan collaborative XFJ program, which sought to improve its life span through drastic refurbishments.

Deployment to A-01

In 1995, Japan won the bid to host the 4th Alternative Project. Following this, Yokohama Base was constructed over the remains of the Yokohama Hive, left by Operation Lucifer. It was used as the headquarters for the UN Forces garrison.

Following the conventions of the Alternative Program, where the host country provides the program with facilities, equipment, and personnel, the Imperial Japanese Prime Minister Sakaki Korechika offered the Shiranui, which was the latest cutting-edge machine.

Though this gesture was a political calculation that aimed to secure the influence gained from the Alternative Program, and reinforce the pro-UN stance of the Empire, it was fiercely opposed by the Ministry of Defense and the ministers involved.

Their main misgiving was having their unique 3rd-generation technology so freely distributed to the UN, after having worked hard for so long for them. The problem grew complicated, creating a gap between the two sides. However, both sides agreed that having Alternative 4 stagnate would significantly impair national interests.

It was agreed that the Shiranui's deployment would be restricted to special task forces that comprised solely Japanese Surface Pilots.

Afterwards, the Shiranui, painted in the UN's blue color, was finally deployed to Yokohama Base.

A-01, originally an entire regiment, only had a single squadron operational during Operation 21st. Following the later Defense of Yokohama Base, all craft became incapacitated, and only six Surface Pilots survived.

Despite having seen so much fierce combat and performed so many harsh missions, A-01 continued to exist even until Operation Cherry Blossom. This could not only be attributed to their status as elite Surface Pilots, but also to the excellence of their craft, the Shiranui.

PLAY BACK ALTERNATIVE



1. Shiranuis were present on both sides of the 12-5 Incident, in the IJF and the coup forces. The mastermind of the coup, Captain Sagiri Naoya, also piloted this craft and fought on the front line.

2. Shiranuis from the Fuji Tactical Fighter Training Group during the 12-5 Incident. They were the most elite unit of the coup forces.

3-4. The Shiranuis of A-01, which repeatedly fought fierce battles during Operation 21st. Even while being attacked by a massive amount of BETA, they cut open a path for the XG-70b Susano-O Mk. II to advance, and even when the Susano-O had become incapacitated, they were able to recover 00 Unit and escape.

5. During the Defense of Yokohama Base, A-01's Shiranuis became the final piece needed to defend the base. As a result of the battle, all Shiranui craft fell out of operation, but by successfully defending the Susano-O MK. IV, they gave hope for the future.

UN Forces
Type 94 TSF Shiranui
[Fugaku, Mitsuhishi, Kawazaki]

The Type 94 Shiranui is the world's first 3rd-generation craft to reach combat deployment, and is the Empire of Japan's first purely domestically produced TSF.

It was designed with concepts different to either the F-4 Phantom or the F-15 Eagle, such as for combat in hive interiors where resupplying was not possible. Hence, in order to gain the most mileage out of the least amount of movement, the sensor mast and the forearm knife sheath were designed to take advantage of aerodynamic properties. Furthermore, Japan's unique focus on melee can be seen across the craft, especially with the strengthening of the main arm and manipulator in order to retain its combat capabilities when using melee weapons, which do not require ammunition.

This Shiranui is coated with 'UN Blue'. Only 108 of these craft were ever delivered, as these were for the founding of A-01, the special task force under Alternative 4. Due to the task force's secrecy, and the fact that they had been worn down to a single squadron by 2001, it is rare to ever see this craft in UN colors.

Its international designation is 'F-94' or 'Type 94'.



SPECIFICATION

Model Number	TSF-Type94
Generation	3rd
Year of Deployment	1994
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE108-FHI-220
Height	19.7m



Shiranuis piloted by Lieutenant Hayase Mitsuki and 2nd Lieutenant Shirogane Takeru descending the main shaft of Yokohama Base. They quickly descended to the reactor, located in the lowest stratum, by using techniques such as kicking against the walls to change vectors. Such three-dimensional movement techniques are only available to TSFs.



REAR (NO EQUIPMENT)



REAR (FULL EQUIPMENT)



SIDE



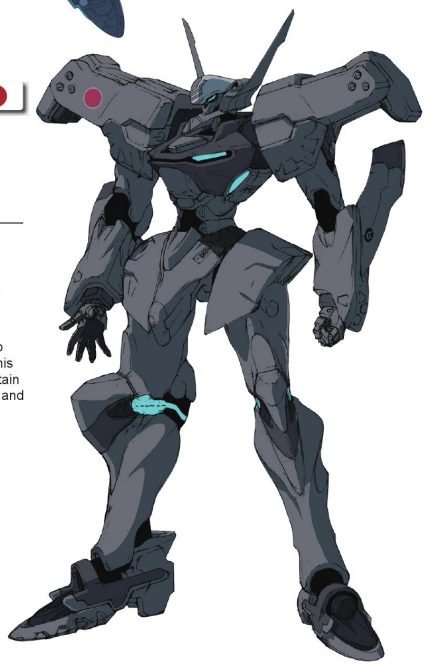
FLIGHT MODE

On each craft, the joints between the jump unit and airframe, the vector nozzle, and the tail fin are independently movable, allowing for complex changes in movements and polygonal movement to be conducted mid-flight.
More details can be seen from behind.

IJF

Type 94 Shiranui | Imperial Japanese Mainland Defense Force & Imperial Capital Defense Regiment Specification

[Fugaku, Mitsuhishi, Kawazaki]



The IJF paint on this Shiranui shows the Rising Sun, contrasted against a dark gray body.
Generally, all IJF Shiranuis are painted in this color scheme.
During the 12-5 Incident, there were unofficial records of one defeating an F-22A Raptor.
Despite having the advantage in mid and long-range combat with the F-22A's superior cruising speed and radar cross-section, Major Alfred Walken of the US Army 66th Tactical Armored Battalion was defeated when his F-22A Raptor was destroyed by Captain Sagiri Naoya of the Imperial MDF capital defense regiment, who was leading the coup. This victory was achieved by forcing the F-22A into a close quarters dogfight.
However, in this situation, the 66th Tactical Armored Battalion was engaged in a dense escort mission, which was significantly beyond the envisioned operation of the F-22A Raptor, so it would be rash to speak of either pilot's superiority or inferiority from this result alone. However, what can be proven are Captain Sagiri's skill in neutralizing the F-22A's advantages, and that the Shiranui has latent abilities allowing it to surpass even the F-22A Raptor, if used correctly.

SPECIFICATION

Model Number	TSF-Type94
Generation	3rd
Year of Deployment	1994
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit engine	FE108-FHI-220
Height	19.7m

富嶽重工業
光菱重工
河崎重工



IJF

Type 94 TSF Shiranui | Fuji Training Corps Specification

[Fugaku, Mitsuhishi, Kawazaki]

The Fuji Training Corps takes on the role of the enemy 'aggressor' during combat training, and is a group that instructs and trains Surface Pilots across many units.
Due to this role, their craft are painted in Russian camouflage; an acknowledgement of how the Soviet Union had been the hypothetical enemies of Japan for many years.
The group consists of elite members, chosen from across the entire country, and they boast very high skill and morale from having constantly conducted anti-human training with other units.
However, they are generally disliked by other Surface Pilots, for many reasons including how their role is often as the simulated enemy in an advantageous position due to the general purpose of anti-human combat training, and how merciless and harsh they are during said training.

SPECIFICATION

Model Number	TSF-Type94
Generation	3rd
Year of Deployment	1994
Manufacturer	Fugaku Mitsuhishi, Kawazaki
Jump Unit Engine	FE108-FHI-220
Height	19.7m

富嶽重工業
光菱重工
河崎重工

FUBUKI



3rd Generation
Tactical Surface Fighter

IJF
Type 97 TST Advanced Training Craft
Fubuki (TST-Type 97) [Fugaku, Mitsuhishi, Kawazaki]

A Dedicated Training Craft for 3rd-Generation TSFs

The Type 97 TST Advanced Training Craft Fubuki was developed as a by-product of the Shiranui's development during the Youkou Program.

In 1983, having only ever produced under license and refurbished 1st-generation craft, the three companies Fugaku, Mitsuhishi, and Kawazaki were suddenly confronted with the problem of developing a domestic, 3rd-generation craft. They immersed themselves in steady research on fundamental technology, focusing on their own technological deficiencies.

However, the Domestic Next-Gen TSF R&D Agency, under the Ministry of Defense, grew frustrated at the program's stagnation, and wanted a breakthrough by importing and producing under license the US-made F-15 Eagle. [For more details, refer to the craft explanation of the Shiranui]

In 1989, having gained experience from researching, producing, and using the F-15, the proof of concept 'Craft 1 TSF-X' was completed. This prototype would use technology to further improve its mobility, which was a central tenet of the 2nd generation.

However, some combat functions that weren't needed for testing, like the S-11 mechanism, were omitted from the prototype, and the output of the engine and jump unit did not reach the required specifications. Regardless, by recreating 2nd-generation TSF technology domestically, which up to that point had not been thought possible, the program gained much momentum.

The Craft 2 Prototype was given "Operation By Light" technology to increase its reactivity, and was used to test 3rd-generation technology that had been demonstrated in the US ATSF Program, such as newly developed electronic equipment, which possessed features such as strengthened combat information exchange functions.

After gathering exceptional trial data, the Domestic Next-Gen R&D Agency started to conjure up the possibility of developing a TSF for inter-generational training purposes, so that the innovative capabilities of the 3rd generation could be utilized to their fullest.

Up until that point in TSF development history, only the T-38 Talon was used as a training craft, though it would later become the F-5. That said, the Talon was developed by Northrock in order to transition Air Force pilots into TSFs. There had never been the luxury of a training craft specialized in training Surface Pilots between generations.

Standard training for new recruits was to pilot a multi-seat variant of a craft from an older generation close to its retiring date, such as the F-4 or F-5 series.

However, there was too large a gap in ability and characteristics between the Gekishin and the Shiranui.

Despite the simplicity of 3rd-generation craft, their abilities would go to waste without appropriate training. As the conditions on the continent deteriorated, it became difficult to tolerate the waste of time from having to wait for two sets of training. Not only would recruits need to be trained for frontline combat, they would need additional training to master the Shiranui itself.

However, because the Shiranui would be deployed to combat groups immediately after being manufactured, there were no spare craft that could be used for this conversion training.

The idea that was later singled out was to use the demonstrative trial craft, which had finished its role, since the Shiranui was completed.

All that needed to be done was to remove any functions that weren't needed for training from Craft 6, the mass-produced trial craft of the Shiranui.

By using this craft as a base, the duration of its testing period was reduced to almost zero, and it had countless merits such as how the facilities and equipment, as well as over 60% of the parts, could be shared with the Shiranui. Furthermore, with simplifications to the process, the working schedule was decreased, hastening the craft's deployment. Finally, when the required amount of craft was produced, the facilities could be transferred to the Shiranui's production line. This request to procure a training craft was immediately approved, and in 1997, the Fubuki was delivered to the IJA.

From this intricate development experience, some members of the military have a firmly rooted belief that the Fubuki, the mother of the Shiranui, is actually the world's first 3rd-generation craft and Japan's first domestic craft, rather than the Shiranui itself.

A Latent Ability to Withstand Actual Combat

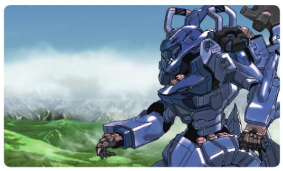
Because the Fubuki's basic design is shared with the Shiranui, it has also received much acclaim for its capabilities. As a training craft, the output of its main engine and jump unit have been reduced for safety reasons. However, being a 3rd-generation craft, it demonstrated maneuverability far beyond that of the F-4J Gekishin.

As expected, the IJF has considered its combat use in emergency situations. By retrofitting it with live ammunition armaments, it can be directly deployed to the front line, as is.

In fact, during the 12-5 Incident, the Fubukis of the 207th Surface Pilot Flight Cadets were retrofitted with combat equipment and dispatched for an escort mission.

Following this, the excellence of the Fubuki allowed them to survive impossible odds. While pursued by the Coup forces during the 12-5 Incident, they all returned alive, even after combat against the Shiranui craft of the elite Imperial Capital Guard Regiment, with additional thanks to the new OS and support from the US Armed Forces. They also survived the sporadic BETA assaults during the subsequent Yokohama Base Incident.

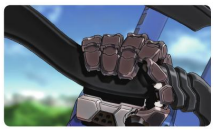
PLAY BACK ALTERNATIVE



Cadet Mitsurugi Meiya and Cadet Shirogane Takeru en route to the rescue mission for the Mt. Tengen Eruption Disaster. In order to save an old woman who refused to be rescued or evacuated, they planned to make a boulder fall into the valley to hold back the magma flow.

Both boarded a single Fubuki and used a wired link to control two craft simultaneously. They used the two craft like a multi-stage rocket to gain the required altitude.

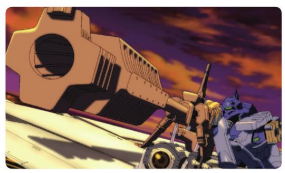
They pulled off the miraculous feat of hitting a target of 20cm within 2 degrees of error with the Type 74 PB Blade, which had been swung down at maximum output while performing a reverse-thrust descent.







A terrorist attack occurred when a HSST fully loaded with explosives was dropped over Yokohama Base.
Cadet Tamase Miki, in a Fubuki, used the 1200mm OTH Cannon to shoot down the HSST. The Fubuki's waist block and shoulder block armors were removed to allow the craft to assume a prone position with the OTH cannon.



UN Forces
Type 97 TST Fubuki
[Fugaku, Mitsuhishi, Kawazaki]

An advanced training craft that is used by the 207th Flight Cadets, serving under Alternative 4. To these cadets, it is a familiar craft.
The Fubuki in UN colors is rare.
There were no plans to provide 207B with the craft, given their deplorable state, and they were returned to the IJF following the completion of 207A's training.
However, when the element passed the Comprehensive Combat Skill Evaluation Exercise thanks to Cadet Shirogane, Executive Officer Kouzuki Yuuko arranged for crafts in good condition to be redelivered.

SPECIFICATION	
Model Number	TST-Type97
Generation	3rd
Year of Deployment	1997
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE108-FHI-220E
Height	18.5m





REAR (NO EQUIPMENT)

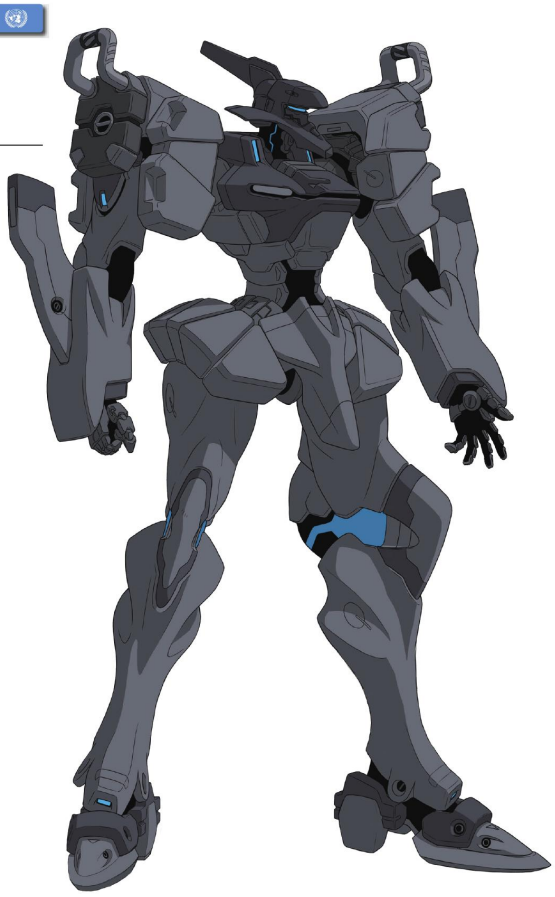


REAR (FULL EQUIPMENT)

IJF
Type 97 TST Fubuki
[Fugaku, Mitsuhishi, Kawazaki]

This Fubuki is used by newly arrived IJF Surface Pilots for TSF operation training. Like the Shiranui, it is painted in the IJF standard color scheme.
There is no difference in specifications between this and the UN variant. It is used by combat units on the northern front.

SPECIFICATION	
Model Number	TST-Type97
Generation	3rd
Year of Deployment	1997
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE108-FHI-220E
Height	18.5m







2nd Lieutenant Yuuya Bridges of the UN Forces, main Test Pilot of the XFJ Program, struggled with the Japanese craft's mobility characteristics, since it had a completely different development concept to those from the US. [>Total Eclipse]

Surface Pilot Training

Training Simulators

Even as training craft, TSFs are still highly valued equipment, and their numbers are limited.

If an inexperienced trainee were to board such a craft and damage it in an accident, the military senior officials would not tolerate it, even if there were more craft than Surface Pilots. Hence, much of a Surface Pilot's training period involves the use of simulators.

The TSF simulator's frame is patented by Markin Berger, a US company that owns the international patent of TSF control units. Like the control units, the simulator is also common across countries. Training programs exist for each individual make of craft, and it is possible to recreate the different characteristics of each craft by selecting the appropriate program.

In the simulator, the console arms and pedals, and the various interfaces are all located in the same places as an actual TSF, so the experience gained from the simulator can be directly transferred to a real craft.

Furthermore, the simulator frame has an advanced attitude control device mounted on it to almost perfectly replicate the shaking and tilting of controlling a TSF.

Additionally, even Surface Pilots active on the front lines still rely on training with simulators, since they can replicate situations too dangerous for real life, or those that are rarely produced during operations.

Though they appear perfect, simulators do have their limitations. They can only partially recreate gravitational acceleration and inertia, but can make up for this by using the sensory feedback system and the fortified suit. Gravitational acceleration can be somewhat simulated by combining the cockpit's movement with electrical signals sent to the pilot's muscles and nervous system, as well as by altering visual information.

In the end, regardless of how real it appears, a simulation is only a simulation. Training in a real craft is required before entering real combat.

Joint Informational and Virtual Exercise System (JIVES)

This system is the next step after using the training simulator.

It is a virtual training program primarily used in actual craft. By using sensory feedback among other techniques, it allows surface pilots to experience more realistic situations that are not easily reproduced.

JIVES can simulate many physical phenomena that occur during combat by using various sensors on the TSF along with data links. These include the changes in weight through consuming ammunition, as well as the amount and location of damage caused by either debris or rounds.

Furthermore, it is capable of precisely recreating things such as visual information of the surrounding environment, and recreating the appearance and movement patterns of BETA. This allows for missions with low survival rates, such as hive capturing, to be repeatedly attempted. JIVES is used used for a wide variety of purposes, from the orientation of rookies, to the special operations training of veterans.





Yokohama Base Training Simulator. This was used in the training simulations of the 207th Flight Cadets, which included Shirogane Takeru, and A-01 Squadron. Takamura Yui of the Royal Guard used the system to simulate a hive capturing operation while trialing the prototype Type 99 Rail Gun [>Total Eclipse].

TAKEMIKAZUCHI

武御雷



3rd Generation
Tactical Surface Fighter

Imperial Japanese Royal Guard Type 00 TSF Takemikazuchi (TSF-Type00R) [Fugaku, Onda]

Aiming for the Top

In 1991, the Shogunate began selecting a craft to succeed the Royal Guard's F-4J Kai, which was becoming dated.

Although no foreign craft could match the required specifications, which focused on close quarters and mobile dogfighting, many were in favor of importing refurbished versions of either the F-15 Eagle or F-16 Fighting Falcon.

However, after being shown the demonstrator test craft of the Youkou Program and its evaluation trials by the Ministry of Defense, it was decided that the next mainline craft would be developed domestically. Unfortunately, Fugaku, Mitsuhishi, and Kawazaki were all occupied with the development of the Shiranui, and had no spare resources to take on a new development program.

Mitsuhishi Heavy Industries was especially noted, but they were preparing the production lines for the F-15 Eagle after securing its license. Ultimately, the Shogunate would not be able to select the manufacturer of their choice.

Following this, the companies, and the Domestic Next-Gen TSF R&D Agency proposed to the Shogunate to launch a project team, in order to lower the cost of craft procurement. The Agency and the companies also promised to disclose all development information about the Youkou Program, and any foundational technology cultivated during the program. The Shogunate accepted.

In 1992, the Asuka Program commenced to develop the next mainline craft for the Royal Guard. It was led by Fugaku Heavy Industries, which was able to develop fundamental components of the craft at a relatively lower cost, with assistance from Mitsuhishi and Kawazaki. Fugaku would also be supported by Onda Technical Research Institution, which had experience in developing TSF engines and ES weapons.

The specifications required of this craft were much higher than the Shiranui, and the schedule mandated that a prototype would be ready by 1997.

This task was not easy by any means, yet it was not impossible. After all, they were not being asked to jump from 1st to 3rd-generation craft development, like they had previously.

Fugaku and Onda had quickly deemed an entirely new development as impossible, and started to consider an upwards-compatible version of the TSF-X (Shiranui), which was in the middle of development at the time.

However, despite the absurdly high required specifications, they realized that given the how the craft would be operated, it would not be impossible to meet them. Generally, a weapon's entire worth is determined not only by its capabilities alone, but also its maintainability and potential to be mass-produced.

Given that Royal Guard craft are limited to operating solely within Japanese territory, and that they would be relegated to supporting the Shogun and their relatives, it would be expected that an entourage of skilled mechanics and craftsmen would always be on hand to provide adequate care.

Therefore, it would be possible to set the maintainability and production potential to be extremely low, resulting in far greater freedom of design.

Furthermore, as the Surface Pilots of the Royal Guard are expected to be elite, a certain level of compromise would be allowed in the ease of operation of the craft.

The development team appropriated the TSF-X's internal structure and components as much as possible, and were resolved to spend most of their development period on improving the exterior. They began to design a craft that would push the limits of close quarters and mobile dogfighting.

By increasing the main engine's output and responsiveness, the craft became harder to control. However, since it was assumed that the craft would only be piloted by seasoned veterans, rather than by standard Surface Pilots, development of a specialized OS to mitigate the control problems would be left for later in development.

This freedom in development would, in a sense, set fire to the hearts and souls of the engineers on the scene.

Regarding the exterior, every part imaginable was redesigned. They poured cutting-edge technology into every part and refused to make devaluing compromises on the quality of the materials used.

Stepping into untested territory, such as working super carbon blades into the armor and manipulator tips, was bound to bring its own challenges. However, Fugaku, having overcome numerous problems during the Youkou Program, and Onda, known for their ambitions in all industrial fields, were able to have their engineers work as one to overcome each new problem.

Even with the full redesign of the exterior, development progressed at an astonishing pace, but ultimately was not able to meet the schedule. Instead, a mass-production trial craft was completed in 1998.

Following this, two years were spent to cultivate six types of derivatives, each of which was handed down to the Royal Guard and formally adopted in 2000, giving it the name 'Type 00 TSF Takemikazuchi'. The Takemikazuchi was initially seen as somewhat of an acquired taste; that only Surface Pilots who were skilled in the truest sense could operate it. However, with improvements to avionics, and as more data on craft control was accumulated, those problems were also overcome.

The craft colors of the Takemikazuchi were split into purple, blue, red, yellow, white, and black, reflecting the status of the operator. The F-4J Kai, also a Royal Guard exclusive craft, uses the same color-coding.

Each color variant of the Takemikazuchi was given optional equipment as well as more fine tuning so that the higher level craft would display higher capabilities.

In 2002, it gained the reputation of the world's strongest TSF in mobile, close quarters dogfighting, as the craft which led to the success of Operation Cherry Blossom.

Its foreign designations are Type 00R and F-00R.

IJF Introduces the Takemikazuchi?

When the evaluation data of the Takemikazuchi was published, some members of the Imperial Diet began to push for it to be deployed into the IJF as well. To them, it was ridiculous that the Royal Guard alone could monopolize such an excellent weapon.

However, this issue was quelled as more information of the Takemikazuchi was released. It could not easily be produced, compared to other TSF, and its procurement and operational costs were extremely high.

The idea to introduce the Takemikazuchi to the IJF completely vanished after a few days.

Behind the Success of the Operation

Operation Cherry Blossom, planned by Alternative 4, commenced in the December of 2001 to capture the Original Hive. Special Task Force A-01, under direct command of Alternative 4, was assigned with infiltrating the hive and suppressing the primary objective Target Alpha.

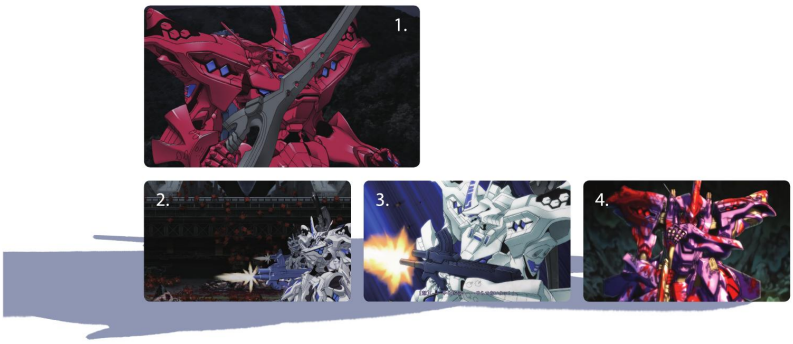
However, it is recorded that even though this task force was part of the UN Force, they made a sortie with five Imperial Japanese Royal Guard craft, the Takemikazuchi, to directly support the Susano-O Mk. IV.

These were an R type, which is normally for the Shogun's exclusive use, one F type and three A types, from the Royal Guard 19th Independent Guard Flight. They were brought into Yokohama Base and requisitioned by professor Kouzuki Yuuko, who used her special authority as director of Alternative 4.

Yokohama Base was under UN jurisdiction, and even the Royal Guard had an obligation to comply with UN military law while at the base.

Although Operation Cherry Blossom was ultimately a success, given the difficulty of A-01's mission, it is uncertain whether or not the outcome would have been the same, had the support craft not been Takemikazuchis.

PLAY BACK ALTERNATIVE



1. During the 12-5 Incident Lieutenant Tsukuyomi Mana's Takemikazuchi destroyed Captain Sagiri Naoya's Shiranui.

As Captain Sagiri was a skilled Surface Pilot, who had defeated an F-22 with a Shiranui, it is likely that even the combination of Lieutenant Tsukuyomi's skills as a surface pilot, and the Takemikazuchi were not enough to guarantee a victory.

This honorable victory speaks highly of the resolve of both Lieutenant Tsukuyomi and Captain Sagiri.

2. The 19th Independent Guard Flight, which had been stationed at Yokohama Base, joins the base's defense.

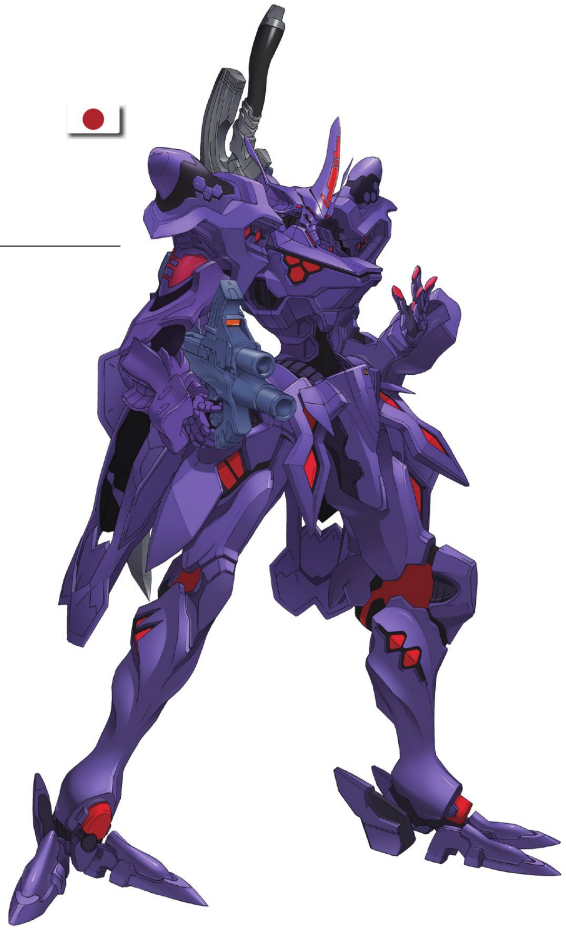
The facts that this unit made it through the battle unscathed, and had kept the wear on their craft to a minimum, contributed in the success of Operation Cherry Blossom.

3. The 19th Independent Guard Flight's Takemikazuchis were lent to A-01, and a grueling battle was held in the Original Hive, with the fate of mankind resting in their hands.

4. In the fierce battle, the Takemikazuchis of A-01 were lost one by one.

Imperial Japanese Royal Guard
Type 00 TSF Takemikazuchi Type 00R
[Fugaku, Onda]

The purple craft color indicates that only the Shogun is allowed to pilot it.
Originally for exclusive use by the Shogun, Koubuin Yuuhi, it was bestowed to 2nd Lieutenant Mitsurugi Meiya of the UN Forces, under special circumstances.
This craft's specifications were pushed to the limit. As a variation of the Takemikazuchi, which is famous for disregarding production potential, maintainability, and procurement cost, the R Type has had even further modifications to it, essentially making it a one-off craft.
The external features of the R Type include the head's main sensor, called the 'Glaring Eye', and the shape of the lower edge of the head.
Furthermore, as a shogun-exclusive craft, it uses a biometric authentication system in the OS, so that only the Shogun, Koubuin Yuuhi, and 2nd Lieutenant Mitsurugi Meiya can operate it.



SPECIFICATION	
Model Number	TSF-Type00R
Generation	3rd
Year of Deployment	2000
Manufacturer	Fugaku, Onda
Jump Unit Engine	FE108-FHI-227
Height	19.4m



A Takemikazuchi craft stored in a hangar at Yokohama Base. Since Meiya disliked being given special treatment, she refused to pilot it. Eventually, she piloted it when faced with Operation Cherry Blossom.



REAR (NO EQUIPMENT)



REAR (FULL EQUIPMENT)

Imperial Japanese Royal Guard Type 00 TSF Takemikazuchi Type 00R

[Fugaku, Onda]

A blue airframe color indicates craft that can only be piloted by members of the Five Regent Houses, Koubuin, Ikaruga, Saionji, Kujo, and Takatsukasa.
During Operation 21st, the head of the Ikaruga House boarded this craft as the commander of the Royal Guard 16th Group.
As an R Type, its basic specifications are the same as the purple variant, but whereas the purple variant is adjusted for specialization with a single person, the blue variant is only a rare craft that has been given more general adjustments.

The main engine and the jump unit have had their maximum output increased by 10% compared to the F Type.



SPECIFICATION

Model Number	TSF-Type00R
Generation	3rd
Year of Deployment	2000
Manufacturer	Fugaku, Onda
Jump Unit Engine	FE108-FHI-227
Height	19.4m



The Royal Guard unit that participated in Operation 21st. The young head of the Ikaruga House piloted this blue Takemikazuchi.

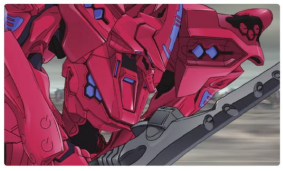


Imperial Japanese Royal Guard Type 00 TSF Takemikazuchi Type 00F

[Fugaku, Onda]



Lieutenant Tsukuyomi's Takemikazuchi, which destroyed Captain Sagiri's Shiranui, which itself was credited with defeating an F-22A.

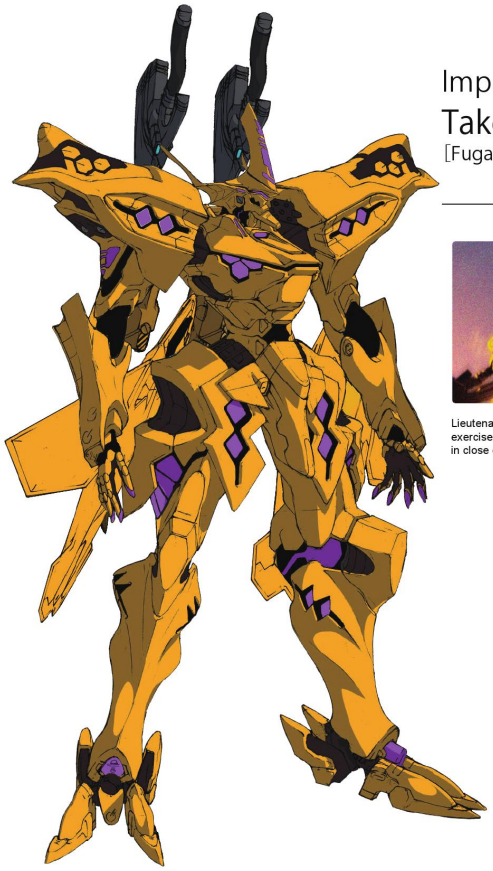


Lieutenant Tsukuyomi's Takemikazuchi was also deployed in Operation 21st and played a magnificent role by taking advantage of its high mobility.

The red variant indicates a high-mobility craft used only by descendants of influential warrior houses that are close to the Five Regent Houses.
The main points of difference in appearance with the R Type are the integrated main sensor and the crescent shape of the lower part of the head.
Lieutenant Tsukuyomi Mana also piloted the F Type and fought through the fierce battles of the 12-5 Incident, Operation 21st, and the Defense of Yokohama Base, returning unharmed from each.
During Operation Cherry Blossom, it was lent to Sakaki Chizuru of A-01.

SPECIFICATION

Model Number	TSF-Type00F
Generation	3rd
Year of Deployment	2000
Manufacturer	Fugaku Onda
Jump Unit Engine	FE108-FHI-225
Height	19.4m



Imperial Japanese Royal Guard Type 00 TSF
Takemikazuchi Type 00F
[Fugaku, Onda]



Lieutenant Takamura Yui's Takemikazuchi interrupted exercises being conducted at Yukon Base and engaged in close quarters combat with Argos Flight.

The yellow variant is a high-mobility specification used by Surface Pilots who are descendants of Fudai warrior families.
Its specifications are identical to the red F Type.
Although both the F and A Type variants are high-mobility specifications, the F Type boasts a 15% greater output for its main engine and jump unit engine.
Lieutenant Takamura Yui [>Total Eclipse] pilots this craft, which would be dispatched overseas to Alaska, in order to finish the XFJ Program. She would be accompanied by a maintenance team of the Imperial Royal Guard.

SPECIFICATION	
Model Number	TSF-Type00F
Generation	3rd
Year of Deployment	2000
Manufacturer	Fugaku, Onda
Jump Unit Engine	FE108-FHI-225
Height	19.4m

Imperial Japanese Royal Guard Type 00 TSF
Takemikazuchi Type 00A
[Fugaku, Onda]



The white variant is a high-mobility specification given to descendants of common warrior houses. Other than color, it has no visual differences with the F Type.
Compared to the C Type, its main and jump unit engines can reach 12% greater maximum output, and it is fitted with superior sensors and avionics.
Within the 19th Independent Guard Flight it is piloted by 2nd Lieutenants Kamiyo Tatsumi, Tomoe Yukino, and Ebisu Minagi.
During Operation Cherry Blossom, they were lent to 2nd Lieutenants Ayamine Kei, Tamase Miki, and Yoroi Mikoto of A-01.

SPECIFICATION	
Model Number	TSF-Type00A
Generation	3rd
Year of Deployment	2000
Manufacturer	Fugaku, Onda
Jump Unit Engine	FE108-FHI-225
Height	19.4m



2nd Lieutenant Ayamine fought to the death in the Original Hive's interior while piloting the Type A. She and the other pilots of the A Type would be granted heroic deaths.

Imperial Japanese Royal Guard Type 00 TSF Takemikazuchi Type 00C

[Fugaku, Onda]



The black variant is piloted by those who are not descendants of warrior houses.
The C Type is the standard model of the Takemikazuchi, which has a greater focus on mobile, close quarters dogfighting than the Shiranui. Therefore, compared to the Shiranui, its main and jump unit engines have 20% greater output, and its joint strength has been increased by 60%.
The characteristic head module is reminiscent of the Zuikaku's, albeit more exaggerated.
The sensors have been simplified to balance costs, but this is compensated for by using data links with the high mobility Takemikazuchi variants.
Similarly, as a cost saving measure, the durability of the joints has been reduced to approximately 70% of the high-mobility types. In general, they tend to be more reliant on bombardment.

SPECIFICATION	
Model Number	TSF-Type00C
Generation	3rd
Year of Deployment	2000
Manufacturer	Fugaku, Onda
Jump Unit Engine	FE108-FHI-223
Height	18.7m

UN Forces Type 00 TSF Takemikazuchi Type 00F

[Fugaku, Onda]



An extreme cold-climate Takemikazuchi trialed by the 1st Independent Northern Squadron, when they were dispatched to Siberia for the preliminary stage of the Evensk Hive capturing mission.
As of 2002, many countries have become competitive in their efforts to gather G-elements. The UN high command sensed the danger of an imminent second Cold War, which would evolve into a war of resources to seize and exploit the G-elements. Because they wanted control of the resource for themselves, the UN was interested in a TSF with exceptional hive-capturing abilities.
The UN Forces high command already had their eyes on Japanese TSFs, which had proven their excellence during Project Prominence, Operation 21st the previous year, and in the Defense of Yokohama Base.
In particular, their evaluations concluded that the Takemikazuchi's close quarters dogfighting abilities, which had led to the success of Operation Cherry Blossom, were without a doubt, one of the best among all existing TSF.
The Imperial government responded enthusiastically to the UN's request to trial their domestically produced craft.
At first, the IJF and the Shogunate were reluctant and fiercely resisted. However, the Prime Minister personally persuaded them by highlighting Japan's urgent need to reconstruct the country, armed forces, and economy, after having been left completely exhausted by successive, fierce battles. More importantly, letting the UN procure their craft, along with the support of Alternative 4's success, would secure Japan's international influence after the conclusion of the war. The Shogun herself also agreed to the deal.
Because the state of the war had been improving for Japan, the procurement numbers of the costly Takemikazuchi started declining, and the withdrawal of the next mainline craft's program was being considered. Though the Shogunate eventually agreed, in order to keep the Takemikazuchi's further programs alive, they were heartbroken.
Units were formed to trial the craft in overseas territory, and they were dispatched to fronts across the globe that were facing hives.

SPECIFICATION	
Model Number	TSF-Type00F
Generation	3rd
Year of Deployment	2000
Manufacturer	Fugaku, Onda
Jump Unit Engine	FE108-FHI-225
Height	19.4m

UN Forces Type 00 TSF Takemikazuchi Type 00C

[Fugaku, Onda]



The extreme cold climate variant of the Takemikazuchi Type C.
As well as its cold resistance, its main modifications include the installation of strengthened waste-heat recycling heaters to its carbonic actuators, joints, fuel circulation system, and to its sensors and monitor cover. The laminated resin armor that protects the joints was swapped for one made with a new material that didn't lose elasticity or flexibility even in extremely low temperatures.
The Ministry of Defense and the Shogunate had been rushing an export model of the Takemikazuchi that had common components and equipment with other TSF so that it could be more easily maintained and produced.
They planned to conduct field testing with a mass production trial craft, once they had gathered and reflected upon enough trial operational data.

SPECIFICATION	
Model Number	TSF-Type00C
Generation	3rd
Year of Deployment	2000
Manufacturere	Fugaku, Onda
Jump Unit Engine	FE108-FHI-223
Height	18.7m

F-22A RAPTOR



3rd Generation
Tactical Surface Fighter

US Armed Forces
F-22A RAPTOR
[Lockweed Mardin]

The Eve of the ATSF Program

From its deployment in 1974, the F-4 Phantom, the world's first TSF, received much criticism, often being called a 'faulty weapon'. However, this had nothing to do with the craft's capabilities. The relative failures of the TSF was rather due to the lack of experience in operation and tactics since it was a new and conceptual weapon, as well as due to the Surface Pilots' lack of skill. In reality, it had still supported mankind's anti-BETA front, which was on the verge of destruction, and it had adequately fulfilled its role as a 'shield' to halt the invasion.

However, from the military leaders across the world, to the Surface Pilots on the frontlines, and even to the management team responsible for its development - not one of them thought that its achievements were worthy of the title of 'a decisive anti-BETA weapon'.

When the F-4 hadn't quite become the 'sword' they had wanted it to be, the world started to eagerly wait for an offensive TSF that was more specialized in anti-BETA combat.

The US government wanted to prevent a BETA invasion of the North American continent at all costs, and this request was promptly responded to. They approved of a 2nd-generation TSF development program that would reflect on the accumulated experiences and data from combat. This program was approved immediately after a new 1st-generation development program, and the two were to run alongside one another.

And so, before ten years had even passed since the deployment of the F-4, the cutting-edge 2nd-generation craft had already reached operational trials. The 2nd generation focused on mobility over armor, and included craft such as the F-14 Tomcat, the F-15 Eagle, and the F-16 Fighting Falcon.

By 1982, these craft looked all but ready to be deployed, and the 'Father of TSFs', Lieutenant General Lloyd Vandenberg of the US Army, saw the astounding evolutionary leap of 2nd-generation capabilities. He predicted that the war with the BETA would end as the 2nd-generation craft reached the end of their shelf life.

Following this, Lieutenant General Vandenberg predicted that the conflicts of interest between nations would intensify as they scrambled after the rare resources found in BETA-controlled territory, and especially within hives. He then submitted a report to the Department of Defense, in which he also predicted the need of TSFs as "a force to take on the final stages of the Great BETA War that would also demonstrate adequate superiority against other, more conventional armed forces, even after its conclusion".

His predictions became instantly popular among the leadership, in some part due to the steady progression of the top secret HI-MAERF Project (Highly Maneuverable Aeronautic Fortress), which sought to develop a hive capturing weapon using the materials of BETA origin that had not yet been identified. However, opinions were split over what specific type of weapon would be developed in this program. This rift extended not only into the government and national defense leadership, but also into congress.

The remnants of the Air Force argued to restart next-generation aircraft development such as for multirole fighters, whereas the Army argued for a new TSF capable of responding to the likely situation of competition over the BETA resources. This debate would last many months, but the Army eventually won, with three main points contributing to their victory. Firstly, a 'victory' or conclusion to the Great BETA War can only be considered in the big picture, and that aircraft would still be rendered useless until the complete extermination of the Laser class, which would take a long time. Secondly, it would be difficult to eliminate BETA on the Moon and the hives on Mars, especially since the landing units they send out create the risk of the Laser classes reappearing on Earth. Finally, there was the possibility that other nations could develop tactical lasers from technology obtained from defeated BETA. Having won the debate, the Army submitted the ATSF Program, which they had prepared beforehand.

ATSF Program

Other than conventional capabilities, the new features required of the next-generation craft of the ATSF included:

1. The ability to engage in combat with existing man-made weapons, including TSFs
2. An advanced first-look, first-kill ability
3. Stealth abilities from electronic equipment to reduce detectability
4. High speed cruising with low fuel consumption, and long distance flight

The US Army inspected concept proposals submitted by seven domestic weapons manufacturers. Of these, Lockweed and Northrock were chosen as the main contractors for the prototype craft YF-22 and YF-23 respectively. Afterwards, Lockweed chose General Dynomics, and Northrock chose McDaell Doglam and Grunnan as their sub-contractors.

However, the fifth-dimensional effect bomb (commonly referred to as the G-Bomb) had a successful detonation experiment the following year, and the US greatly revised their global strategy and military doctrine, for the anticipated new strategy of using of G-Bombs in early stages of combat.

The HI-MAERF Program was immediately halted as a result, and its main contractors, Lockweed and McDaell Doglam, instead focused all of their attention onto the development race of the next mainline craft—a race that would determine the fate of each company.

Initially, the YF-23 had been leading in finishing the proof-of-concept trials, but by the middle stages, the YF-22 had more appeal since it appeared closer to completion as a practical craft. Just before the final stages (mock combat) both craft were almost equally well-received.

The mock combat trial consisted of 40 matches conducted over 2 weeks, and ended in favor of the YF-23 with 18 wins, 14 losses, 5 draws, and 3 uncounted matches.

Its victory can be attributed to it having greater stealth and close quarters dogfighting abilities than the YF-22.

Even though the YF-22 had lower fuel consumption, higher mobility, and better stand-off bombardment characteristics, it was at a disadvantage against another stealth craft. This was because in cases where two stealth craft with high mobility face off against one another, the winner is usually determined by whichever craft is better at close quarters dogfighting.

When all of the proof-of-concept demonstrations concluded, even Lockweed accepted the certainty of the YF-23's victory, since it had even proven itself as superior in anti-TSF combat. However, the US Army ultimately decided on the YF-22 as their next mainline craft.

Their main reasons were due to its procurement cost and maintainability, which were vital for maintenance, but above all, it was due to its high affinity with the US Armed Force's combat doctrine.

Lockweed was saved by the unexpected victory, and full-scale development of the F-22 began.

However, with the G-Bomb becoming suitable for practical use the following year, skepticism surrounding the F-22 grew, which considered 3rd-generation specifications as excessive for TSFs, given that they would be slowly phased out in favor of the G-Bomb. As a result, its development budget was significantly reduced, and Lockweed was forced to merge with Mardin.

Repeated delays would occur in the advance mass production of components such as the main engine of the jump unit, the armor material, the avionics, and in the development of the mass producible testing craft. It was only able to commence deployment in March, 2001.

However, the F-22 Raptor still holds superiority in all respects compared to every other 3rd-generation craft deployed as of 2001, all of which had started development later, and had been deployed earlier.

This fact speaks highly of the innovative spirit of the ATSF Program, where even the YF-23, with capabilities comparable to those of the YF-22, could also be considered an unprecedented masterpiece in TSF development history.

G-Bomb Doctrine

As the ATSF Program was underway, the US government was mired in debate, day and night, about the role of TSFs as a part of their future foreign strategy, which anticipated the outcome of the war with the BETA.

At the same time, the US, as part of NATO, had been dispatching TSF forces to the European Front, which had been becoming more serious. However, these TSFs, which had supposedly been improved from the lessons of Operation Palaiologos, were still continuing to suffer costly losses.

Fatal damage from Laser-class BETA had been declining due to the increases in mobility and maneuverability, but damage resulting from dense, close quarters combat had been trending upwards.

Government officials, having witnessed the loss of human life in the European forces, resolved that American youth should not be made to engage in close quarters combat with the BETA. They began to fiercely oppose Lieutenant General Vandenberg's optimistic view that as dedicated anti-BETA weapons, the 2nd-generation craft would lead to the end the war with the BETA.

In reality, what was needed to remove the BETA from Earth were infiltrations into large-scale stabs, and in such cases, dense close quarters combat was unavoidable.

TSFs were the only weapon that could perform high speed, three-dimensional movement in a hive, and so the last countermeasures that could possibly minimize the damage caused by close quarters combat were to improve detection and acquisition of the BETA by strengthening mounted sensors, and avoid attacks through further increases to mobility and motility, or to just avoid combat altogether.

However, when the G-Bomb reached practical use in 1991, it became a new weapon that held the possibility of eliminating all BETA-related problems.

It was an invincible weapon that didn't emit radiation, and possessed destructive power greater than nuclear weapons, and by using its gravity anomaly field (Rutherford Field), it could neutralize laser interception. All the while, the G-Bomb was touted as the messiah of anti-BETA combat, though its flaw of a semi-permanent gravity anomaly was ignored, as it was difficult to understand.

After all, the train of thought proceeded as: instead of committing the foolish act of throwing lives into a hive, a den swarming with the BETA, it is better to erase the entire hive and stab with a G-Bomb, and use TSFs to eliminate any remaining BETA.

It was from these events and philosophies that the G-Bomb Doctrine would be born. Several months after the detonation trial, it was adopted into US national strategy.

The Birth of the Battlefield Dominating TSF

Having won the formal contract, Lockweed fixed several flaws that had become apparent with its trial craft, and began incorporating specifications that were newly requested by the army, in preparation for the formal adoption of the F-22 Raptor.

However, in 1991, a year after the formal selection of the ATSF program, the G-Bomb became ready for practical use. Due to its unprecedented power and effect, Congress began presenting the idea that a next-generation TSF would not be needed.

Military budget began flowing into G-Bomb production, and the F-22 Raptor was faced with budget cuts and compressions to the plan.

The schedule to prepare the model for mass production became significantly delayed, and Lockweed was forced to merge with Mardin under managerial pressure, due to the reduction in procured numbers.

The F-22A Raptor experienced the pains of birth, and in March 2001, the first four craft (one flight) was given to the Langley, Virginia Army Base and it finally commenced combat deployment.

As if taking revenge, the F-22A Raptor would continue to demonstrate capabilities surpassing the strongest 2nd-generation craft, the F-15E Strike Eagle, in all aspects. It also demonstrated overwhelming dominance over personnel and other TSF during events such as Project Prominence, and the 12-5 Incident.

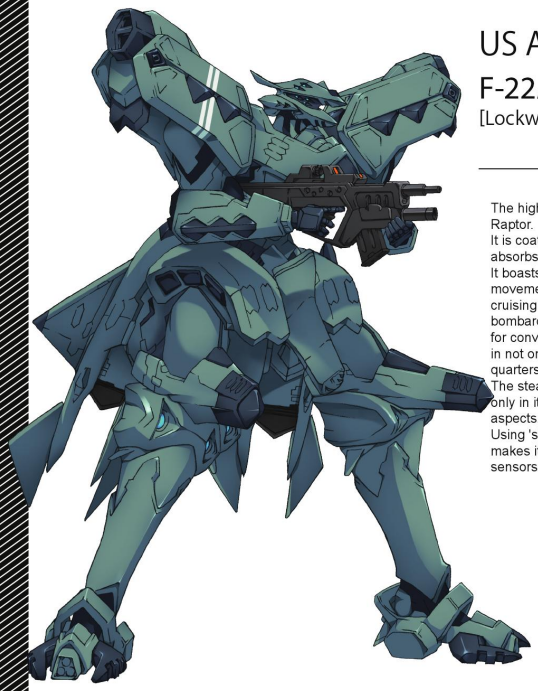
And so, the F-22A Raptor, deemed the strongest TSF in all aspects, was crowned as 'The Battlefield Dominating TSF'.

PLAY BACK ALTERNATIVE





F-22A Raptors from the US Army 66th Tactical Armored Battalion, intervening in the 12-5 incident. The battalion commander, Major Alfred Walken also piloted an F-22A.
The 66th Tactical Armored Battalion engaged Coup forces, which were chasing the 207th Flight Cadets as they escorted the Shogun, Koubuin Yuuhi, out of the combat zone.
As a result, the 66th Tactical Armored Battalion achieved an overwhelming kill ratio of 1:7.
It is no overstatement to say that without them, the Japanese military coup may have succeeded.



US Armed Forces
F-22A Raptor
[Lockweed Mardin]

The high-rate production (HRP) model of the F-22A Raptor.
It is coated in a cutting-edge, dark green paint, which absorbs electronic waves.
It boasts many features including high-speed movement with low fuel consumption, the high-speed cruising ability 'Super Cruise', advanced standoff bombardment capabilities, and various stealth functions for conventional warfare. It surpasses all previous craft in not only mobile bombardments but also in close quarters dogfighting.
The stealth functions, the highlight of the craft, are not only in its form, but also in several active and passive aspects.
Using 'silent mode' while walking with the main legs makes it difficult to detect via vibration or acoustic sensors. It also has considered countermeasures against infrared detection, by being able to eliminate waste heat.
The most notable of these stealth functions is that the integrated electronic warfare system mounted on the craft is of the same standard as those used in dedicated electronic warfare units. They can blind enemy TSF sensors by using an active jammer.
A combat unit of F-22As was deployed in Japan during the 12-5 Incident.
Because only very few have been deployed worldwide, the losses from the incident dealt a large blow to the US Armed Forces.

LOCKWEED MARTIN

SPECIFICATION	
Model Number	F-22A
Generation	3rd
Year of Deployment	2001
Manufacturer	Lockweed Mardin
Jump Unit Engine	FE119-PW-100
Height	19.6m

US Armed Forces
F-22A Raptor-EMD Phase 2 Advance Mass Production Type
[Lockweed Mardin]

This refers to the F-22A craft produced between 1994 and 1997, during the advance mass-production stage (EMD; Engineering and Manufacturing Development), which is before the high-rate production stage (HRP). The flaws found on the prototype, the YF-22, have all been rectified, and its craft specifications don't pale in comparison to the combat deployed HRP.
Craft 1 to 5 were used for operational testing of the airframe's strength and its avionics, while craft 6 to 9 were mounted with electronic weapons and firearms, and were put under operational testing at the same time as craft 1 to 5.
Originally, twelve craft to make one squadron were planned to be manufactured, but this number was reduced to only nine craft, following the budget cuts.

The EMD type is coated in a different electronic wave absorbing paint to the HRP, giving the craft a dark blue color scheme that is almost black.
It was an advance mass-production craft, originally planned for deployment only to the test evaluation combat team. However, when the US Department of Defense expressed its desire to start establishing anti-TSF combat tactics as per future predictions, the craft was deployed to the 65th Aggressor Combat Training Battalion 'Infinities', once trial evaluations were finished.
Their combat records are spoken about as if they were legends. Some include that 'two F-22A craft wiped out eight F-15E Strike Eagles in close quarters', and that 'it fought the F-16 and F-18 over 100 times and never lost'.

SPECIFICATION	
Model Number	F-22A EMD Phase2
Generation	3rd
Year of Deployment	1998
Manufacturer	Lockweed Mardin
Jump Unit Engine	FE119-PW-100
Height	19.6m

LOCKWEED MARTIN



The ATSF Program's Prototype

The US Advanced TSF Program (ATSF) commenced with the goal of developing a next generation successor to craft such as the F-15 Eagle. The two prototype TSFs that competed against one another in the program were the YF-22 and the YF-23.
It was difficult to rank their differences in performance, but the mock combat tests during comparative trials left the YF-23 as the slightly superior craft.
Because it is difficult to acquire the enemy in combat between two stealth craft, they ended up closing the gap into each other's field of vision.
This gave the YF-23 an advantage, as it had superior close quarters dogfighting abilities.

However, the YF-22, with its superior high-speed cruising and long-range offense, was better suited to the required specifications of the US Armed Forces, which had been shifting to its G-Bomb strategy.
Furthermore, the YF-22's close quarters dogfighting abilities were by no means low.
The final deciding factor was that it trumped the YF-23 in its overall cost, from procurement to operation, as well being easier to maintain.
The YF-23 was, in a sense, much like the Empire of Japan's Takemikazuchi - an excessive and costly craft.

YF-22 Trial Craft 1

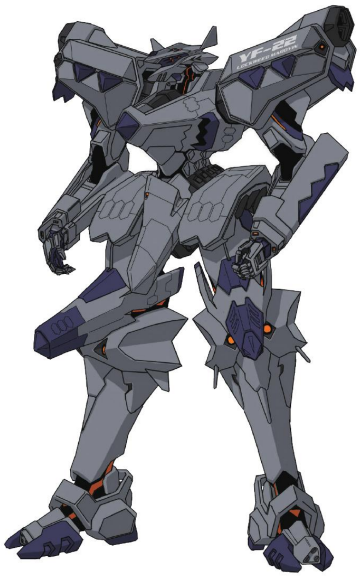
YF-22 N22YX

YF-22 Trial Craft 2

YF-22 N22YF

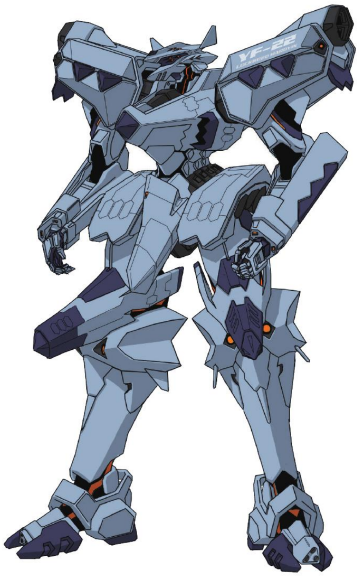
The prototype manufactured by Lockweed as a candidate for the ATSF program, with contributions from General Dynomics and Boening.
Initially, its unofficial nickname was 'Lightning'.
It is no overstatement to say it established concepts and standard specifications characteristic of 3rd-generation TSFs, such as Operation By Light, and high mobility capabilities that could vastly outperform existing TSFs.
The identification number of Craft 1 was N22YX, and Craft 2's was N22YF. To compare their performance, Craft 1 was given the YFE119-PW-100 jump unit engine whereas Craft 2's was the YFE120-GE-100.
Although the only differences in appearance between the F-22A and the YF-22 are with the shape of the head, the internal structures are almost completely different.

LOCKWEED MARDIN



YF-22 N22YX

SPECIFICATION	
Model Number	YF-22 N22YX
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Lockweed
Jump Unit Engine	YFE119-PW-100
Height	19.6m



YF-22 N22YF

SPECIFICATION	
Model Number	YF-22 N22YF
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Lockweed
Jump Unit Engine	YFE120-GE-100
Height	19.6m

YF-23 Trial Craft 1

YF-23 Black Widow II

PAV-1 " Spider"

YF-23 Trial Craft 2

YF-23 Black Widow II

PAV-2 "Gray Ghost"

The YF-23 Black Widow II was a prototype 3rd generation TSF developed by Northrock during the Advanced TSF (ATSF) Program.

Its overall abilities, including stealth capabilities, surpassed its competitor, the YF-22. However, due to the costs of procurement and maintenance, and because it was considered 'over-engineered' for the new direction of US military doctrine, its formal adoption was cancelled.

Once an outlook for the G-bomb's practicalization had been established, TSFs had their importance among the weapons structure lowered, and they were no longer considered the main weapon in anti-BETA strategy. The YF-23 is brimming with equipment for close quarters dogfighting.

These were added in anticipation of foreign sales, especially those resulting from renewal requests of countries that had adopted the F-15. Its design concept focuses on all-round combat ability, taking everything from defenses to hive capturing into account.

NORTHROCK



REAR (NO EQUIPMENT)



YF-23 PAV-1

SPECIFICATION	
Model Number	YF-23 PAV-1
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Northrock
Jump Unit Engine	YFE120-GE-100
Height	19.9m



YF-23 PAV-2

SPECIFICATION	
Model Number	YF-23 PAV-2
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Northrock
Jump Unit Engine	YFE119-PW-100
Height	19.9m

US Army
F-5 Freedom Fighter
[Northrock]

A lightweight TSF, refurbished from a training craft. It was formally adopted so that the US could respond to the global TSF deficit. It began to be exported in 1976.

The F-4 Phantom was the ace in the hole against the BETA, as the world's first TSF, and the US was flooded with orders for it, especially from the European countries at the frontlines.

Knowing that they would bear the brunt if the line collapsed, the US made solving the TSF deficiency their top priority and immediately approved exports of the F-4. However, as the F-4 had been developed with cutting-edge technology, its production lines hadn't yet reached maturity. Even if the production lines operated at full capacity, they could not keep up at all with the overwhelming demand.

Reluctantly, the US approved the licensed production of the F-4 to several countries, even with the risk of technology leaks.

Ultimately, licensed productions still required high technological skills, so not many countries could set up manufacturing lines for the craft in the first place. Furthermore, its high operation and maintenance costs acted as bottlenecks. The US government then discussed with domestic manufacturers the possibility of developing a small, lightweight TSF that was easier to maintain and operate.

In response, Northrock proposed a plan to create a lightweight TSF by making minimal additions to the armaments and armor of the T-38 Talon, which was being developed as a Surface Pilot conversion training craft for air force pilots.

Not only was it easy for inexperienced Surface Pilots to handle the T-38, it had also matured to a state where it was in advance mass production. The proposal for it was accepted immediately.

After passing a simplified evaluation trial, it was formally adopted as the F-5 Freedom Fighter.

In order to catch up to the delay of the development program, 40% of all TSF production lines in not only North America, but also in South America and countries such as Australia, were designated to it. While the F-5 Freedom Fighter was commencing its large scale mass production, licensed productions across Europe also commenced.

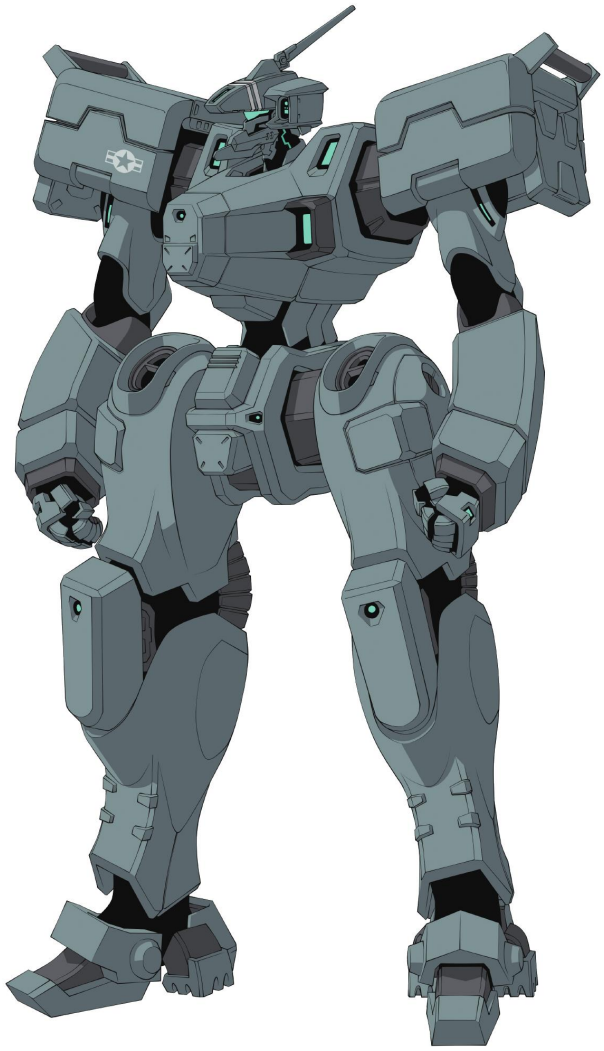
Gradually, the TSF deficiency in Europe would be resolved.

On the other hand, the US prioritized the supply of domestically manufactured F-5 Freedom Fighters to countries that didn't have licensed manufacturing capabilities. This would allow a perimeter to be formed around the Eurasian continent, with the BETA trapped in it.

While the F-5 Freedom Fighter was given simplified electronic armaments and armor in order to cut manufacturing costs, it was more well received than the F-4 Phantom in Europe due to being lightweight and highly mobile.

Furthermore, the simplified equipment would be independently refurbished by various countries, leading to many local specifications and eventually to craft such as the Mirage, Tornado, and Viggen.

Although the F-5 Freedom Fighter was created as a last resort to solve the TSF supply crisis, it had become the roots of almost all 2nd and 3rd-generation TSFs being developed in Europe as of the present day. It was not merely a cheaper version of the F-4 Phantom. It was a pioneer in and of itself.



SPECIFICATION	
Model Number	F-5
Generation	1st
Year of Deployment	1976
Manufacturer	Northrock
Jump Unit Engine	FE85-GE-15
Height	17.3m

NORTHROCK

US Army

F-5E /**F Tiger II**

[Northrock]

An upgrade over the F-5 Freedom Fighter, with the nickname 'Tiger II'.
While the TSF supply crisis was being solved with the manufacturing of the F-5 Freedom Fighter, the manufacturing lines were gaining experience and increasing their efficiency. As productivity increased, so too did the demand for higher specifications on the F-5, which was originally introduced as a cheap alternative to the F-4 Phantom.
In response, Northrock submitted a proposal to refurbish the F-5 Freedom Fighter, based on requests and improvement data from the countries that had imported the F-5, and it was formally adopted as the F-5E Tiger II.
The jump unit engine was swapped out for the stronger FE85-GE-21 and its avionics were improved to increase mobility. Although it retained the weaknesses of its electronic equipment, it managed to reach quasi-2nd-generation capabilities.

In Southeast Asia, there is a craft called the F-5G Tigershark, which is an F-5E refurbished for humid conditions, and which has been given improved aerodynamic characteristics. It is currently being operated in trials.

SPECIFICATION	
Model Number	F-5E/F
Generation	1.5th
Year of Deployment	1976
Manufacturer	Northrock
Jump Unit Engine	FE85-GE-21

French Army
Mirage III(F-5F)
[Dass Ault]

Deployed in 1976, the Mirage III is a licensed production of the F-5 Freedom Fighter by French manufacturer Dass Ault. It was also exported, and is still being operated and refurbished in not only France, but also in countries in Africa.

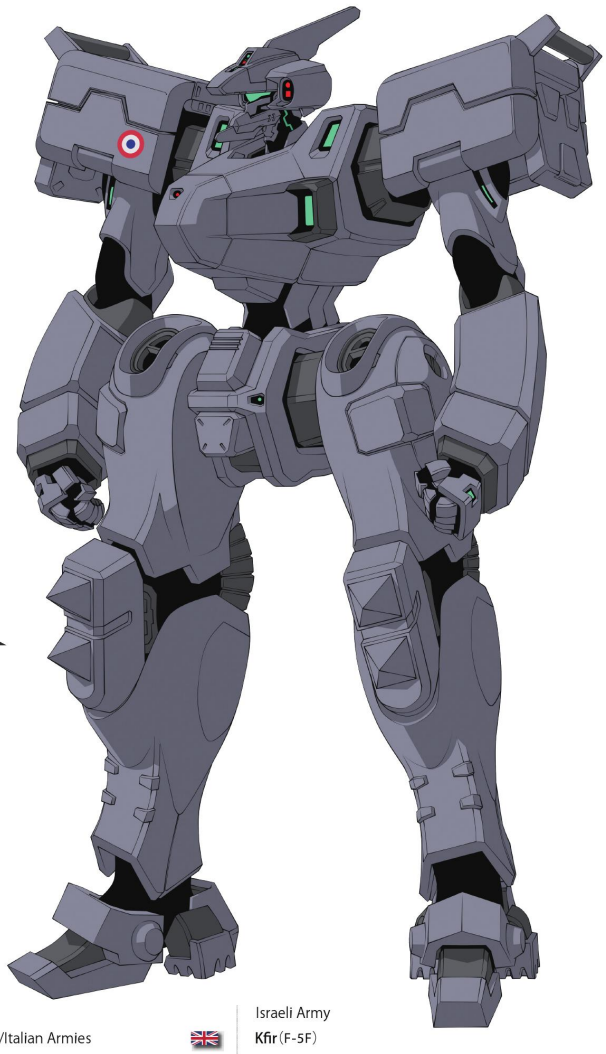
The Mirage III licensed production was rushed due to the increasing BETA threat. However, communications and enemy detection functions which had been rudimentary on the F-5 were improved by using the same sensor mast as the F-4 Phantom. Armor spikes were also added to the knee block armor, since the craft was expected to be deployed in regions densely populated with the BETA where close quarters dogfighting capabilities would be sorely needed.

This improvement of functions was a shared characteristic of the F-5 Freedom Fighter licensed production craft such as the F-5E/G/I (Tornado IDS), and the J-35 Draken, which with the F-5F would collectively be known as the 'Five Sisters'.

Technology cultivated during these refurbishments influenced each successive craft, like the Mirage 2000 and the Tornado ADV. Armor spikes in particular would evolve into blade vanes as tougher composite materials were developed, and these would be mounted across the airframes of the craft.

Currently, this design has become a characteristic of European craft, along with the shape of the head modules.

SPECIFICATION	
Model Number	F-5F
Generation	1st
Years of Deployment	1976
Manufacturer	Dass Ault
Jump Unit Engine	FE85-GE-15
Height	17.3m



DASS•AULT

UK/West German/Italian Armies
Tornado (F-5E/G/I)
[Palavia]

The collaborative licensed productions of the F-5 Freedom Fighter, conducted by England, West Germany, and Italy, which was deployed in 1976. Each country invested in Palavia Industrial's establishment in West Germany to begin mass production. Fine changes in specifications were performed based on the requests of each country, resulting in the F-5E for England, F-5G for West Germany, and the F-5I for Italy.

These three were called IDS (Interdictor Strike), and as suggested by the name, they were operated similarly to US doctrine, with a focus on bombardment. The main point of improvement of the IDS craft over the F-5 Freedom Fighter is the attachment of variable wings to their jump units, which increases their maximum speed and improves their STOL abilities and mobility.

STOL was deemed an important focus since the craft was intended for use with the British Royal Navy and needed to be able to land on small aircraft carriers, which were not yet optimized for TSFs.

However, the thrust and craft control of 1st-generation craft brought a lot of grief to Surface Pilots, who found it difficult to land on the vessels.

This would be improved for the second generation and beyond, and these changes would strongly emphasize the TSF's characteristics as a weapon with three-dimensional movement.

SPECIFICATION	
Model Number	F-5E/G/I
Generation	1st
Year of Deployment	1976
Manufacturer	Palavia
Jump Unit Engine	FE85-GE-15

UK/West German/Italian Armies
Tornado ADV
[Palavia]

A refurbishment of the F-5E/G/I Tornado, which were themselves licensed productions of the F-5 Freedom Fighter. The 'ADV' in its name stands for 'Area Defense Variant'. With a focus on defending Britain, its forward-oriented infrared monitors and armament control system abilities were increased, and fixed armaments for close quarters combat were added.

The evaluation trials were conducted in Alaska at Yukon Base, and its development had been based on raising a 1st-generation craft to 2nd-generation specifications at a low cost.

SPECIFICATION	
Model Number	Tornado ADV
Generation	1.5th
Year of Deployment	1982
Manufacturer	Palavia
Jump Unit Engine	FE85-GE-21

Israeli Army
Kfir (F-5F)
[Dass Ault/IEI]

The Israeli specification F-5F Mirage III, which commenced deployment in 1976. After importing the F-5F Mirage III, Israeli manufacturer IEI refurbished the craft.

Its specifications are in line with 2nd-generation TSFs, since it has a stronger main engine, and its weight has been reduced.

It is built for desert combat, especially in Middle Eastern environments. The jump unit and control unit are dust-proof and can dissipate heat, and it also has a strengthened infrared sensor able to be used in the scorching sands. This sensor makes up for the fact that vibration sensors lose their detection abilities in deserts.

SPECIFICATION	
Model Number	F-5F
Generation	1st
Year of Deployment	1976
Manufacturer	Dass Ault/IEI
Jump Unit Engine	FE85-GE-15

US Navy

F-11 Tiger

[Grunnan]

A US-made TSF deployed in 1976, which was the first to be specifically designed for the navy. It was designed to be smaller and more lightweight, to make operation on carriers easier, and was also designed for high maneuverability, in consideration of take offs and landings on vessels.
However, during the prototype stages, the increases in weight caused by refurbishments ended up causing a lack of output in the engine. This resulted in reductions in mobility and its ability to mount armaments. As a result, introduced craft were quickly replaced with a naval variant of the F-4 Phantom.

SPECIFICATION	
Model Number	F-11
Generation	1st
Year of Deployment	1976
Manufacturer	Grunnan
Jump Unit Engine	FE79-GE-2A

United States

F-18A/B C/D Hornet

[McDaell Doglam]

The F-18 Hornet is a 2nd-generation TSF developed by American manufacturer McDaell Doglam. It was based on the YF-17 Cobra demonstrator trial craft made by Northrock, as a prototype entrant in the Lightweight TSF (LWTSF) Program's competition.

Development History

The YF-17 was defeated by General Dynomics's prototype, the YF-16 Viper, and so it missed its opportunity to be adopted by the US Army. However, the US Navy, which was being pressured by the significant procurement and operating costs of the F-14 Tomcat, turned their attention to this craft's cost-effective armament mounting ability and its balance of operational time and mobility. They then ordered refurbishments to convert it into a carrier-loadable TSF.

Several years of adjustments followed, including a control block that deployed horizontally, since TSFs loaded on carriers were stored in a supine position. The arms holding the armor blocks and the shoulder blocks were also extended. It was adopted in 1987 as the mainline craft for the Navy and Marines.

SPECIFICATION	
Model Number	F-18
Generation	2nd
Year of Deployment	1987
Manufacturer	McDaell Doglam
Jump Unit Engine	FE404-GE-400

US Navy

F-18E/F Hornet

[McDaell Doglam]

The F-18E/F Super Hornet is a 2.5th generation TSF developed by American manufacturer McDaell Doglam, which is based on the F-18 Hornet. The US Navy had already been deployed across the entire Eurasian continent, and planned to increase the numbers of deployed TSFs, in order to support the several fronts that were being worn down. However, they were facing troubles with the costly procurement and operation of the F-14 Tomcat, which was the 'high' in their High-Low Mix.

After quickly abandoning the Super Tomcat Program, which would have refurbished the F-14, they decided to widely adopt the F-18E/F Super Hornet, which was comparatively lower in price, and was already in the process of being refurbished.

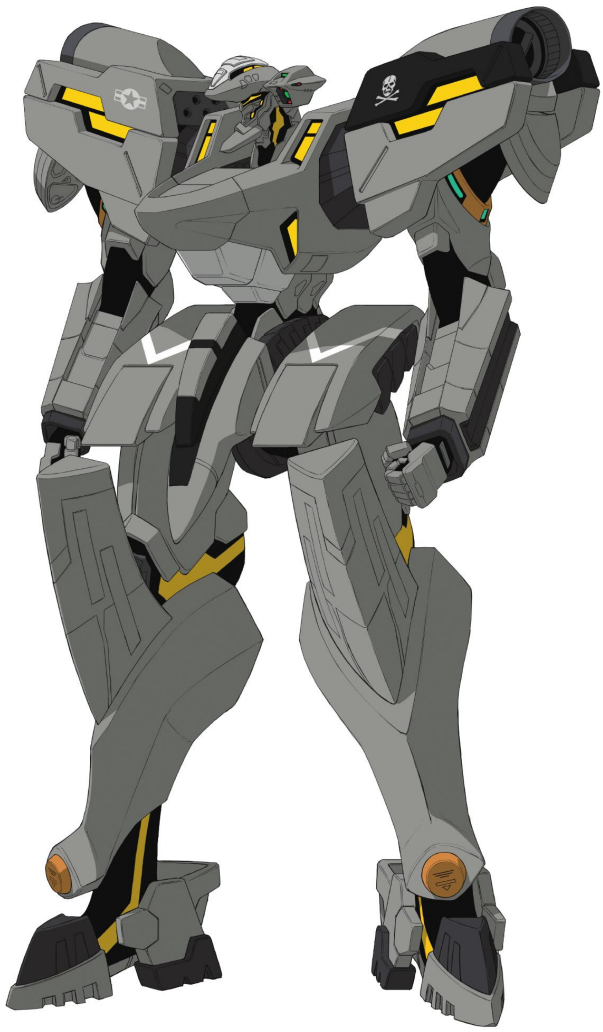
The F-18 Hornet itself was met with a mediocre reception, but McDaell Doglam responded by proposing the 'Hornet 2000 Program', which was based on the F-15 Eagle refurbishment program (the DRTSF) which was also under-way at the time.

After gaining approval from the Navy, the large scale refurbishment, which was on the scale of a complete re-design, was launched, with plans to give the F-18 Hornet specifications surpassing those of the F-14 Tomcat. By the end of 1994, the craft commenced deployment to the US Navy.

The sensor's capacity was expanded by stretching the head module, and its electronics were strengthened by refitting various avionics. Side thrusters were also added to its shoulder block armor. Its defenses were reinforced and its operative time was extended by enlarging its waist armor block and its lower legs. Overall, it was upgraded across the board.

Furthermore, new materials and a redesign helped to improve the airframe's rigidity and toughness, and this also helped to increase the output of the jump unit's main engine. Its vertical climbing ability, which was once considered its weakness, was also dramatically improved. By increasing the thrust-weight ratio and the size of the airframe, it could solve the craft's armament mounting problem.

SPECIFICATION	
Model Number	F-18E/F
Generation	2.5th
Year of Deployment	1994
Manufacturer	McDaell Doglam
Jump Unit Engine	FE414-GE-400



Third United Front

F-CK-1 Ching-kuo [TAIDC]

A licensed production of the F-18 Hornet. The F-16 Fighting Falcon and the F-18 Hornet were proposed by the US in response to Taiwan's requested specifications, which wanted culling operations performed around the Taiwan Strait. Of these two choices, the F-18 was selected due to factors such as its long operational time and its high versatility.
Its cruising range was extended by enlarging the fuel tank to increase the amount of propellant that could be loaded, as well as by an overall weight reduction.

SPECIFICATION	
Model Number	F-CK-1
Generation	2nd
Year of Deployment	1990
Manufacturer	TAIDC
Jump Unit Engine	FE404-GE-400

The F-18AX Raging Hornet is an experimental craft that was developed as part of COSEAN's plan to independently develop a 3rd generation craft. It was created by refurbishing the F-18E Super Hornet, a 2.5th generation craft.

Development History

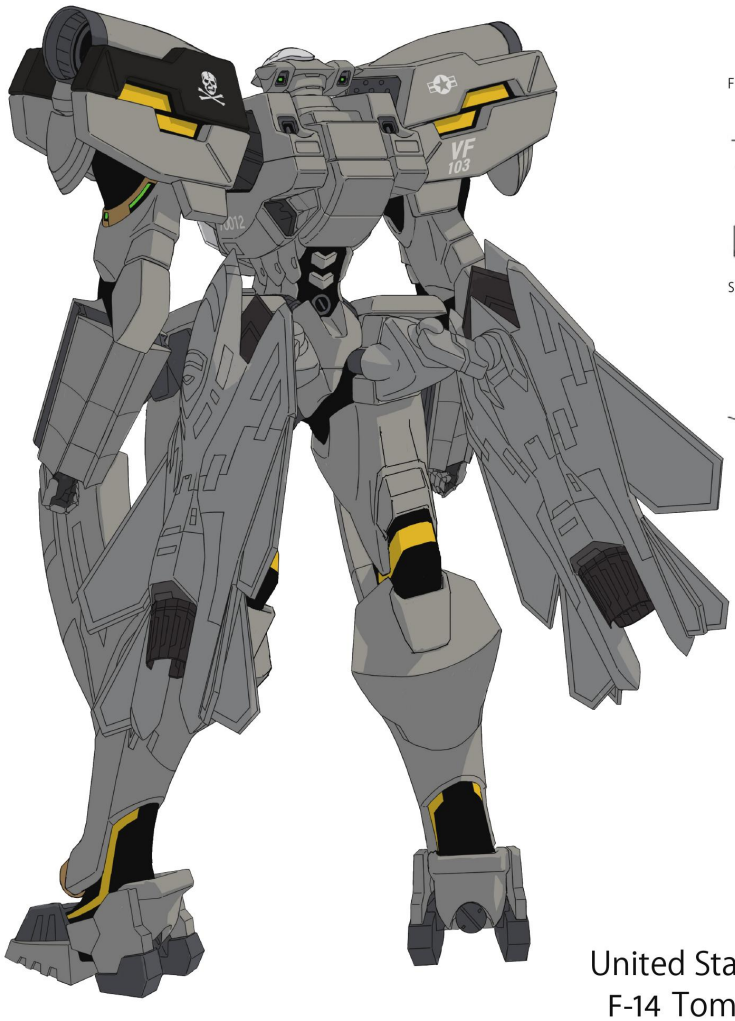
In the 1980s, individual member states of COSEAN were procuring conventional weapons independently, and this significantly hindered the ability for COSEAN forces to establish strategies. Each nation had different specifications and standards of equipment, which mainly created problems with logistics. The increased variety of equipment bloated supplies, and complicated the resupplying process. The funds required to sustain these logistics weighed heavily on each country's finances.

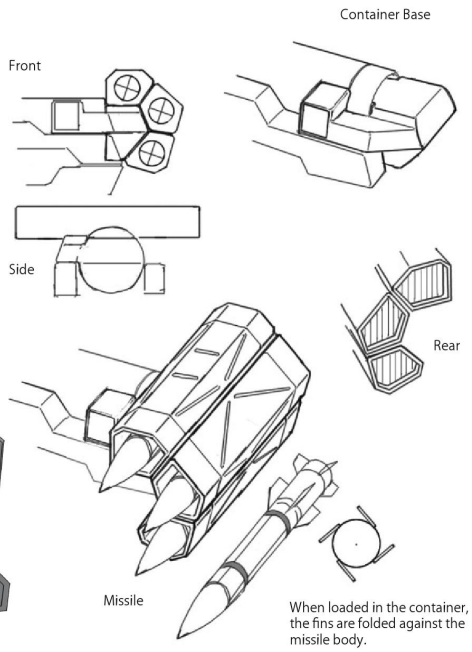
This led to differences between better off and worse off countries, in regards to how many crafts each country could deploy and the combat zones each country was deploying to. As the war continued, these differences became set in stone.

This situation shook the foundations of the charter of the Coalition, which called for equality by distributing risks justly across the coalition. Eventually, the militaries of the member states began to distrust each other and the collaborative operations of the Coalition were brought into in jeopardy.

The UN, having changed their Eurasian strategy from 'elimination' to 'containment', was concerned about the weakened military in the East Asian and South East Asian Fronts caused by the internal conflict in COSEAN. They dispatched rapid deployment forces and provided economic assistance in order to more easily position themselves as arbitrators for the conflict.

After receiving this aid, the leaders of the member states agreed to resolve their problems at the Coalition headquarters in Indonesia, where they adopted the Jakarta Declaration, which would unify the procurement of TSFs over the course of several stages.





United States
F-14 Tomcat
[Grunnan]

The F-14 Tomcat was the world's first 2nd generation TSF and was deployed in 1982. It was developed by Grunnan (currently Northrock Grunnan).

It was expected to be used in offshore deployment forces, centering around mobile carrier task forces, and it mainly conducts landing support by using long range missile attacks. The craft was also designed with medium to close range area control combat in mind.

In order to respond to various missions, it is crewed by 2 Surface Pilots. In this multi-seat variant of the control unit, the combat pilot sits at the front and the navigator sits in the back.

The US Navy had analyzed anti-BETA combat in Eurasia and submitted their findings as a report. From this report, the US government changed the designs of all Nimitz class nuclear powered aircraft carriers (excluding the 1st Nimitz class carrier), which were under construction at the time. These would be converted into full scale TSF carriers, capable of deploying just under than two battalion's worth of TSFs.

Following this, the US Navy ordered Grunnan to develop a craft to succeed the F-11 Tiger, which was the first carrier-oriented TSF in history.

Grunnan was eager to orchestrate the revenge of the F-11 Tiger, which in reality had been treated as a failure, with its seat stolen by the F-4 Phantom. They used its negative feedback to the fullest in order to meet the navy's harsh requirements, and they focused the company's entire strength on designing a successor.

Half a year later, the blueprints and specifications of this craft were submitted to the navy and were met with a very enthusiastic response from their officials.

The Navy's Required Specifications and Grunnan's Solutions Operation of a new, dedicated, and large support missile. The extension of continuous operative time.

High survivability

> The enlargement of the craft body, and the adoption of a multi-seat control unit

Significant improvements in mobility and maneuverability

> Exchanging the heavy armor for lightweight composite armor made of a new material, and the adoption of OBW

Aerodynamic control concepts

> Adopting a variable wing structure on the jump unit

This was an ambitious TSF design that actively adopted innovative technologies. The navy was delighted by the submitted design, and placed an exceptional advance order of over 100 crafts, even though it was still in its design stages. They also committed to financially supporting the development, while asserting their high expectations. Backed by plentiful funds, development was smooth, and in November 1981, the first mass production craft was handed to the Navy.

The F-14 Tomcat was very well received by the navy's leadership. During the ceremony to introduce the craft, the "Father of TSF" in the navy, Admiral Lascaux Helen Carter lavished it with the highest praise, stating that, "With the introduction of the F-14, all other TSFs have become obsolete overnight".

As of 2001, the F-14 Tomcat has begun to be brought into retirement ahead of schedule, due to its rising maintenance costs. The F-18E/F Super Hornet would replace it as the navy's mainline craft.

Some crafts entering retirement are being downgraded to be sold off to pro-US countries in Africa as well as to Iran, the only nation other than the US to have introduced the F-14.

In 1987, it was also proposed for sale to Imperial Japan, setting off an intense marketing battle against the F-15 Eagle. However, it was not adopted due to its deficiency in close quarters combat abilities.(※)

※The commotion over a dogfight at Iruma Base, as part of comparative inspections, is famous for symbolizing the intense marketing battle.

AIM-54 Phoenix

A large, long-range guided missile system, designed for use on the F-14 Tomcat.

It was developed to be able to conduct suppressive attacks from outside of the firing range of the Laser class, by using cover such as the terrain, or the horizon before the shore party lands.
The system uses a type of cruise missile, and it reaches its target with automated guidance via a GPS and terrain contour matching, making it possible to simply fire and forget.
The missile breaks apart above the target and suppresses a wide area by dispersing small explosives.

The system is commonly called the 'Phoenix', and consists of a launcher pod equipped on each shoulder block, with each pod holding up to three large cluster missiles.

A single squadron can focus fire to inflict significant damage to even a brigade scale BETA group, including Laser classes. However, starting with the costs of the missile itself, with its high-precision guidance system, the high operating costs of the entire missile system creates a bottleneck.

The production of the Phoenix was halted when the F-14 Tomcat was retired. However, license productions of the Phoenix for the MiG-25, MiG-31, and the Su-32 are still being used.

SPECIFICATION	
Model Number	F-14
Generation	2nd
Year of Deployment	1982
Manufacturer	Grunnan
Jump Unit Engine	FE110-GE-400
Height	19.3m

Grunnan

Middle Eastern Coalition Army
F-14Ex Super Tomcat
[Northrock Grunnan]

The F-14Ex Super Tomcat is a quasi-3rd generation TSF being collaboratively developed by the Iranian Army and Northrock Grunnan. It is an upgrade over the F-14 Tomcat with greater close quarters dogfighting abilities.

While being the oldest 2nd generation craft, the F-14 Tomcat is also a large craft, and because of this, it has a lot of free design space for modifications. Successive refurbishments have resulted in the F-14D, the latest model, which has the same overall capabilities as the F-15C.

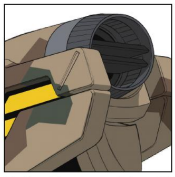
However, by the time of its retirement, it had already bested the F-18 Hornet in almost every aspect, despite the F-18 being the successor. The F-14 had better operative time, combat capabilities, and more trust from the Surface Pilots coming from carrier combat teams that were experienced in combat.

Factions of the navy leadership thought the same, with some officials saying that the craft's continued operation should at least be considered. Seemingly jumping onto the bandwagon, Northrock Grunnan proposed the 'Super Tomcat Program' to the Navy, which would upgrade the existing F-14 Tomcat into a 2.5th generation craft through refurbishments alone.

However, the program would face difficulties due to the high costs of refurbishment. Furthermore, due to the fact that the refurbished F-18 (The F-18E/F Super Hornet), which had been completed in the meantime, displayed higher than expected overall specifications, the program would be shelved.

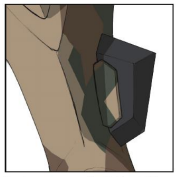
As a relief measure for Northrock Grunnan, with nothing else going for them, the US government resubmitted the same plan to Project Prominence, as a means of strengthening the close quarters combat abilities of the F-14s sold to Iran. In the following year, it was accepted, and Northrock Grunnan were to work alongside the Iranian Army in developing the F-14Ex.

SPECIFICATION	
Model Number	F-14Ex
Generation	2.5th
Year of Deployment	Prototype
Manufacturer	Northrock Grunnan
Jump Unit Engine	FE110-GE-400
Height	19.3m



Significant improvements in mobility and maneuverability.

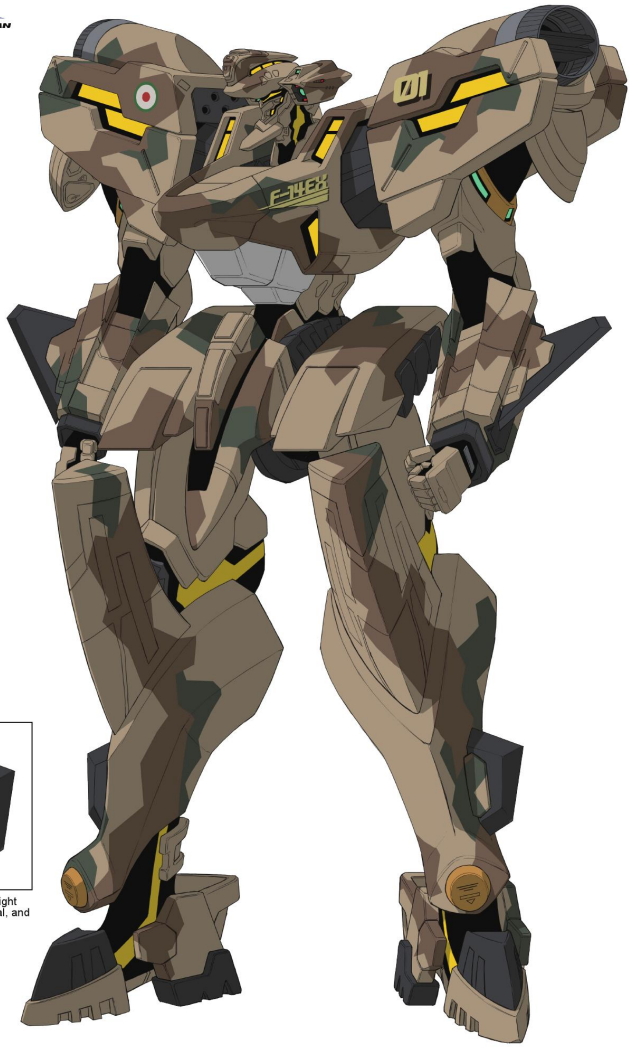




Exchanging the heavy armor for lightweight composite armor made of a new material, and the adoption of OBW







F-14 & F-14Ex

US Armed Forces

X-29

[Grunnan]

An experimental craft of the of Advanced Technology Demonstration Program (ATDP), which started in 1981. The ATDP was a collaborative research program by the US Department of Defense Advanced Research Projects Agency (DARPA), the US Army, and NASA to establish the required technology for 3rd-generation craft.

Grunnan took on the production of the craft and was able to get a head start in the trials by recycling parts and designs from existing craft, which also kept their costs to a minimum. For convenience, the craft was classified as being 2nd generation, even though the ATDP had already established technologies that would become 3rd-generation standards such as OBL and craft control technologies using aerodynamic properties. Since the X-29 used these technologies in its tests, it could also be seen as quasi-3rd-generation.

With hives within their borders, the Empire of Japan and many European countries expected an ever growing need of close quarters combat. These nations set their sights on the experimental data of these aerodynamic control technology, which had boasted increased fuel efficiency.

Each nation adopted this technology to their domestic craft to much acclaim, and their focus on the successes of the program would later manifest in their independent 3rd-generation craft developments. Grunnan also secretly offered data to Sufoni, a Soviet Union Design Bureau. This data would influence the later development of the Su-37 and Su-47.

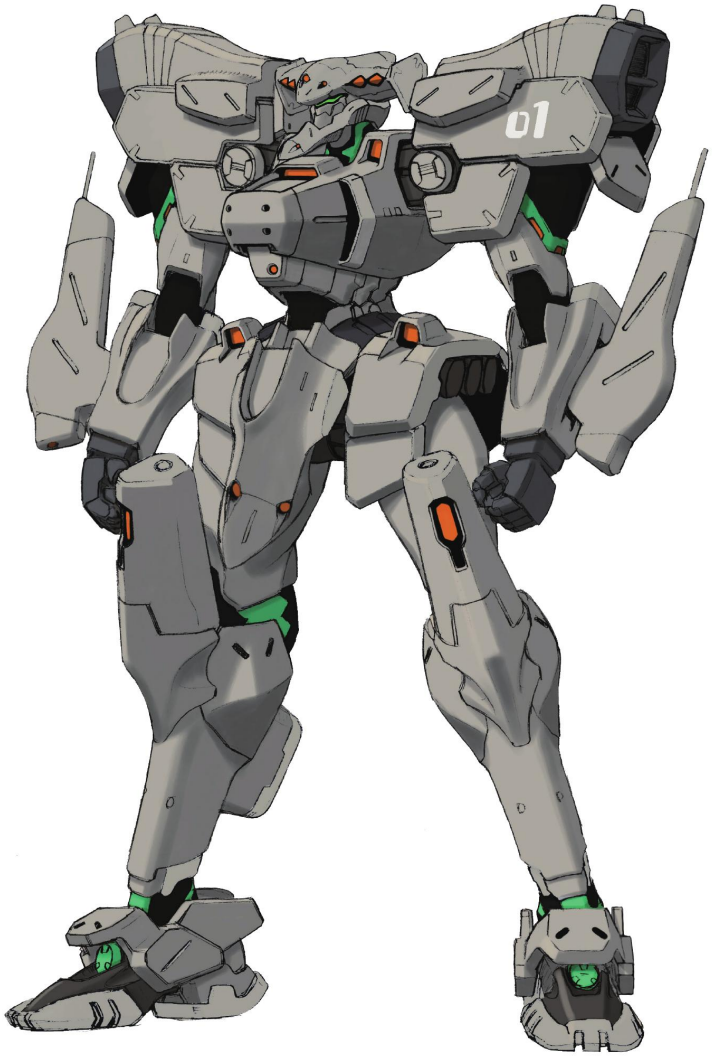
SPECIFICATION	
Model Number	X-29
Generation	2.5th
Year of Deployment	Prototype
Manufacturer	Grunnan
Jump Unit Engine	FE404-GE-400

US Armed Forces
F-15 ACTV Active Eagle
[Boening]

A refurbishment of the F-15 Eagle. Its operational trials are still being conducted as of 2001.
As a result of the change in US doctrine, the priority of military funding was redirected towards the G-element applied weapons department. Furthermore, with the delay in combat deployment of the F-22, which Boening had prepared to assist in the production of, their TSF development department would be backed into a corner.
Boening's TSF development department, with its survival on the line, proposed the idea to refurbish F-15s that were already deployed across the world, in order to establish an aftermarket.

Boening had succeeded in developing the F-15E Strike Eagle, but faced a problem where it was cheaper to produce a new craft from scratch, rather than refurbishing preexisting craft into F-15Es. This was due to the fact that although the F-15E was identical in appearance to the F-15A/Cs, its interiors were completely different, essentially making it a new craft. However, the F-15A/C had deployment numbers second only to the F-4 Phantom, so retiring it would result in a significant loss of military strength. Furthermore, the costs of replacing all F-15s with 3rd-generation craft would be astronomical, and there weren't enough production lines to allow it in the first place.
From this, the 'Phoenix Initiative' was started to retrofit the F-15A/C's avionics and add modules to bring the F-15A/C to quasi-3rd generation specifications.
The F-15 ACTV was the trial craft meant for demonstration of this program.

The increased mobility is the most prominent feature of the F-15 ACTV.
Its jump unit uses the same nozzles as those on the F-22A Raptor, and thrusters were added to the shoulder blocks and the rear weapon rack.







To increase its precision bombardment abilities during high-speed cruising, its head sensors have been improved. As a result, the shape of the head has also changed.

Its Prats & Whitney F-100-PW-100 engine was changed to the 114wb engine of the same manufacturers, and it was made to automatically switch over to a turbofan engine once it reached a pre-set speed. However, in exchange for this higher output, the craft had lower operational uptime. To adjust for this, it was made to be able to mount drop tanks for fuel, and had its head sensors improved to give it higher precision while conducting bombardments during high-speed cruising. Reinforced parts that contain sensor pods were also fitted onto the upper arm's hardpoints.

The F-15 ACTV is a demonstrator craft, and its operational evaluation trials are being conducted by Argos Test Flight under Project Prominence, where it can be shown off to other countries. By the beginning of 2001, it had reached its final stages of practicalization.

SPECIFICATION	
Model Number	F-15-ACTV
Generation	Quasi-3rd
Year of Deployment	Prototype
Manufacturer	Boening
Jump Unit Engine	FEb114-PW-100
Height	18.7m

US Armed Forces
F-16 Fighting Falcon
[General Dynomics]

A lightweight second generation TSF that was developed by American manufacturer General Dynomics.

The 1980s saw the deployment of two high quality 2nd generation crafts in the F-14 Tomcat and the F-15 Eagle, but their procurement costs soared due to their high specifications. This put pressure on the national defense budget, and ultimately led to interruptions in planned procurement numbers.

This would prove to be a headache for the US Army and the Pentagon, which sought to renew and strengthen their anti-BETA combat capabilities quickly. The US government took this situation seriously and came to draw up the 'High-Low-Mix' Initiative. They also put their support behind the LWTSF (Lightweight Tactical Surface Fighter) Program, by promoting it from its original goal of technology research into a combat craft development program. Through this, they created the cheaper, high specification 2nd generation craft, the F-16 Fighting Falcon.

Compared to the F-15 Eagle, it was smaller and lighter, giving it less design space for further improvements. However, it had adopted many innovative technologies across many of its parts, and demonstrated extremely high mobility and maneuverability during combat.

Due to this, it was deployed not only to the US, but was actively exported around the world as a 2nd generation craft to replace the F-4 Phantom and the F-5E Tiger II.

Many local specifications exist, such as the Jian-10. However, whereas F-15 variants are similar in appearance, F-16 variants differ greatly in this respect, as their upgrades often involved redesigns to the craft's airframe, due to the F-16 having less spare design space.

As a side note, many US Surface Pilots call this craft the 'Viper', a nickname from its prototype stages during the LWTSF Program.

Though this defeated the YF-17 Cobra in the LWTSF Program, that craft would soon be formally adopted in the navy as the F-18 Hornet.

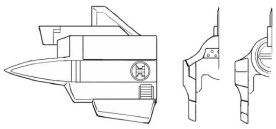
In 1991, General Dynomics sold off most of its TSF development department, and as of 2000, the F-16 Fighting Falcon is being manufactured by Lockweed Mardin.

The head's design follows the same design trend as the F-14 and F-15.

The F-16 Fighting Falcon, like the F-4 Phantom, has many local specification crafts from across the world. Additionally, from Block 52/D of the F-16, the shoulder blocks and lower legs were enlarged to increase durability and operational time.

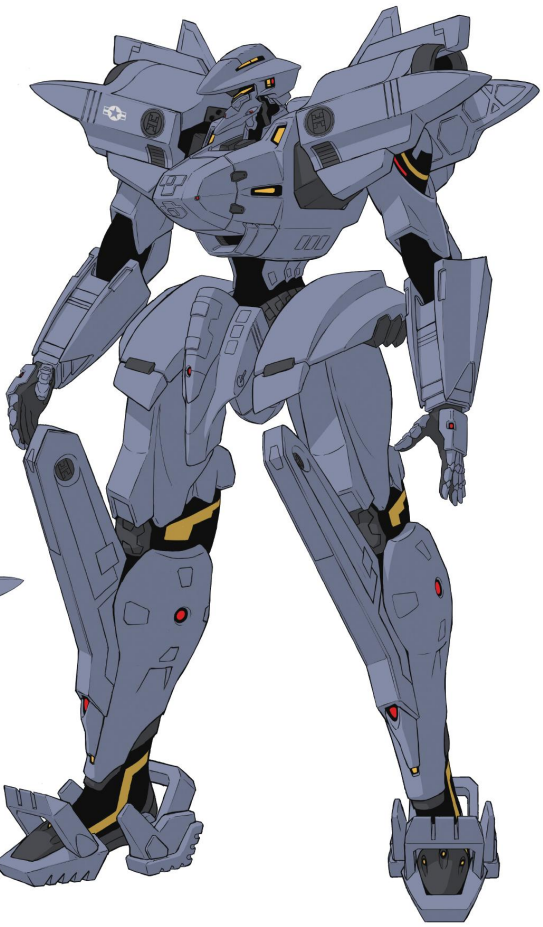


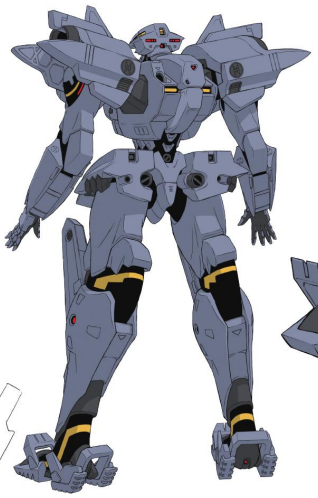
The head's shape follows the same design trend as the F-14 Tomcat and the F-15 Eagle.



The shape of the shoulder block

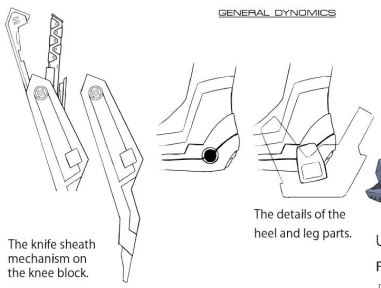
The F-16 Fighting Falcon, like the F-4 Phantom, has many local specification craft from across the world. However, since Block 52/D of the F-16, the shoulder block armor and lower legs have been enlarged to increase durability and operational time.





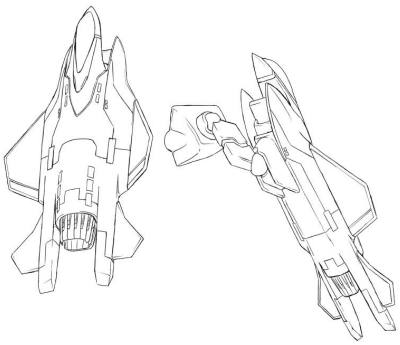
SPECIFICATION	
Model Number	F-16
Generation	2nd
Year of Deployment	1986
Manufacturer	General Dynomics
Jump Unit Engine	FE100-PW-100
Height	17.3m

GENERAL DYNOMICS



The knife sheath mechanism on the knee block.

The details of the heel and leg parts.



US Armed Forces
F-16XL
[General Dynomics] GENERAL DYNOMICS

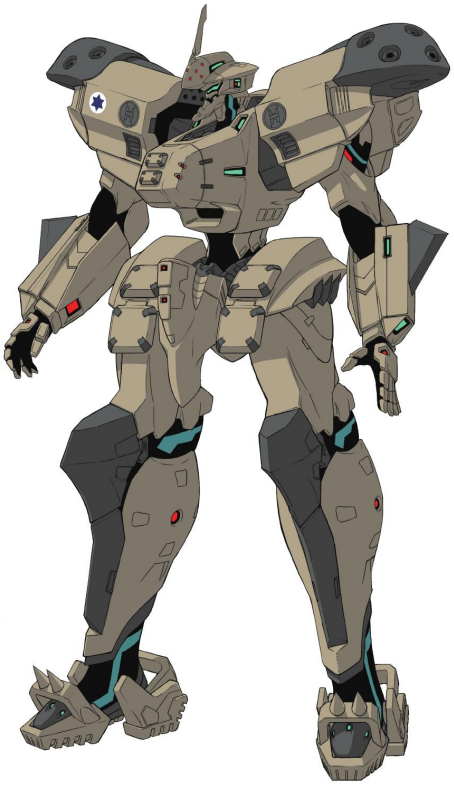
A prototype TSF that was developed in the Dual-Role TSF (DRSTF) Program, in order to cover for the supply deficiency of the next era mainline TSF, the F-22 Raptor, which had undergone a review of procurement numbers.
In order to compensate for problems of the base F-16, such as its short operational time and lack of long distance capabilities, the airframe and jump unit were both enlarged.
The F-15E Strike Eagle was selected for the DRTSF, but data that had been collected by the F-16XL has seen use in the development of the F-35 Lightning II.

SPECIFICATION	
Model Number	F-16XL
Generation	2.5th
Year of Deployment	Prototype
Manufacturer	General Dynomics
Jump Unit Engine	FE110-GE-129

US Armed Forces
F-35 Lightning II
[Lockweed Mardin] LOCKWEED MARDIN

A 3rd-generation craft that is being developed with international cooperation to replace the F-16 Fighting Falcon and the F-18 Hornet, though developments are primarily being made in the US. It sought to reduce costs by sharing the development and production across several countries, and by having as many shared parts between army and navy specifications as possible. However, its development is facing difficulties, due to reasons such as discrepancies in the requested specifications of each country.

SPECIFICATION	
Model Number	F-35
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Lockweed Mardin
Jump Unit Engine	FE135-PW-600



Israeli Army
Lavi
[IEI]

A TSF collaboratively developed by Israel and the US.

Israel, which had hoped to reclaim its territory ahead of its Arab neighbors, was dissatisfied with the close quarters dogfighting abilities and mobility of the TSFs supplied to them by the US. They hence began to independently develop the Lavi as their own close quarters combat specification of the F-16 Fighting Falcon.

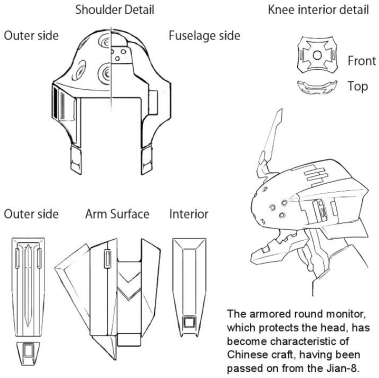
However, when the US began adopting a G-Bomb oriented anti-BETA strategy, they halted development support of the Lavi and withdrew their financial support, which accounted for 60% of the project.

Without sufficient funds, Israel was essentially forced to suspend the program.

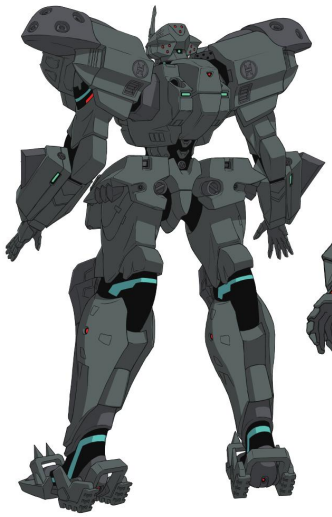
However, development was able to continue with a proposal for a collaborative development from the Third United Front, which was hoping to launch its own independent TSF development. The Lavi reached combat deployment in 1994, as did the Jian-10.

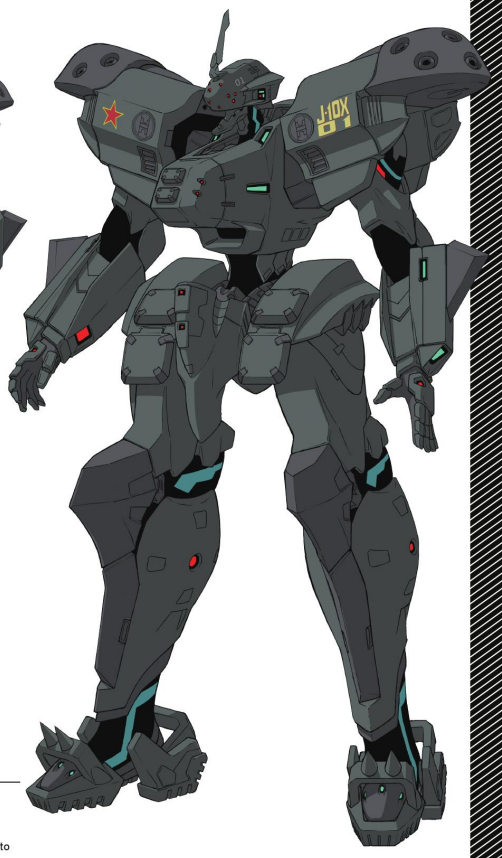
SPECIFICATION

Model Number	Lavi
Generation	2nd
Year of Deployment	1994
Manufacturer	IEI
Jump Unit Engine	FE100-PW-100
Height	17.3m



The armored round monitor, which protects the head, has become characteristic of Chinese craft, having been passed on from the Jian-8.





Third United Front
J-10 Jian-10
[IEI/Changdu]

A 2nd generation TSF developed by both the Third United Front and Israel.

It is a cutting edge craft based on the F-16C Fighting Falcon, and it has been deployed alongside the J-11 (Su-27SK) as part of the Chinese version of the High-Low-Mix Initiative.

It is an excellent craft, with high close quarters dogfighting abilities, maintainability, and production potential.

From all of the F-16 Fighting Falcon derivatives, commonly called the '16's Family' among military personnel, it has been the most successful.

The US had offered countries that had adopted the F-5 Freedom Fighter the choice between the F-16 Fighting Falcon and the F-18 Hornet to serve as the F-5's replacement. The Third United Front adopted the F-16, which had better close quarters dogfighting abilities, but despite its stellar performance, it was a disappointment to those who had wanted to reclaim the continent.

On the other hand, Israel was aiming to retake its territory ahead of its Arab neighbors, and was continually dissatisfied with the TSFs that they had been receiving from the US. They decided to independently develop a craft, the Lavi, with the high levels of close quarters dogfighting ability that they had desired.

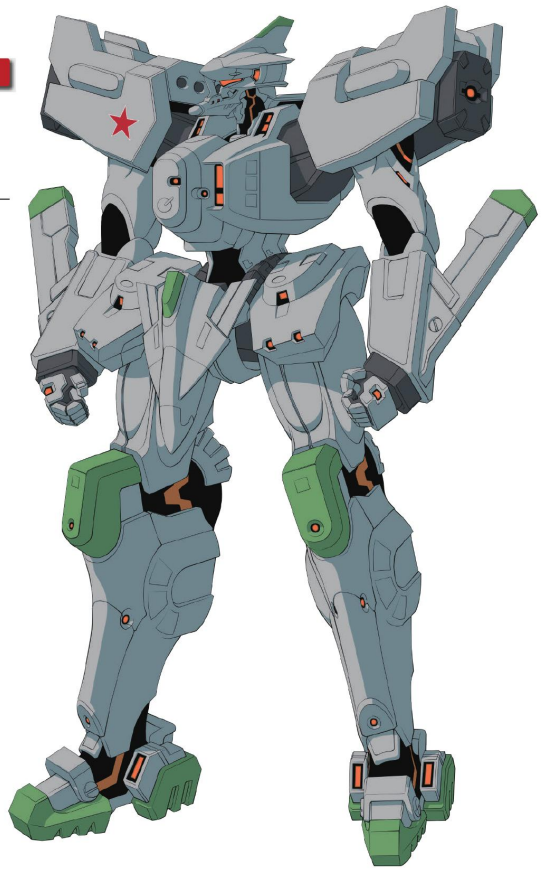
Initially, the US had been supporting the project by contributing 60% of the development funds, so when they pulled out after changing their anti-BETA strategies to account for the G-Bomb, the program was effectively halted.

Taking advantage of the situation, the Third United Front hoped to establish their own independent TSF development technologies, and so put forward their own collaborative plan to upgrade the F-16 Fighting Falcon. This reached combat deployment in 1994.

SPECIFICATION

Model Number	J-10
Generation	2nd
Year of Deployment	1994
Manufacturer	IEI/Changdu
Jump Unit Engine	AL5-31E
Height	17.3m

Soviet Union
MiG-23 Cheburashka
[Mikoyam Guluvich]



The MiG-23 Cheburashka is a 1st generation TSF developed by Mikoyam Guluvich, and was deployed in the Soviet Army in 1980.

The MiG-21 Balalaika was claimed to have been the first domestically produced craft in the Soviet Union, but Western military sources identify it as simply being a refurbished F-4R. Therefore, the MiG-23 Cheburashka is internationally recognized as the Soviet Union's first purely domestic TSF.

As it was developed from the MiG-21 Balalaika, its basic structure such as its airframe and layout are not dissimilar to the F-4 Phantom. However, as it has actively introduced the design concepts of F-5 series crafts, which displayed high close quarters dogfighting capabilities on the European front, its appearance gives an impression of an F-5, but one size larger.

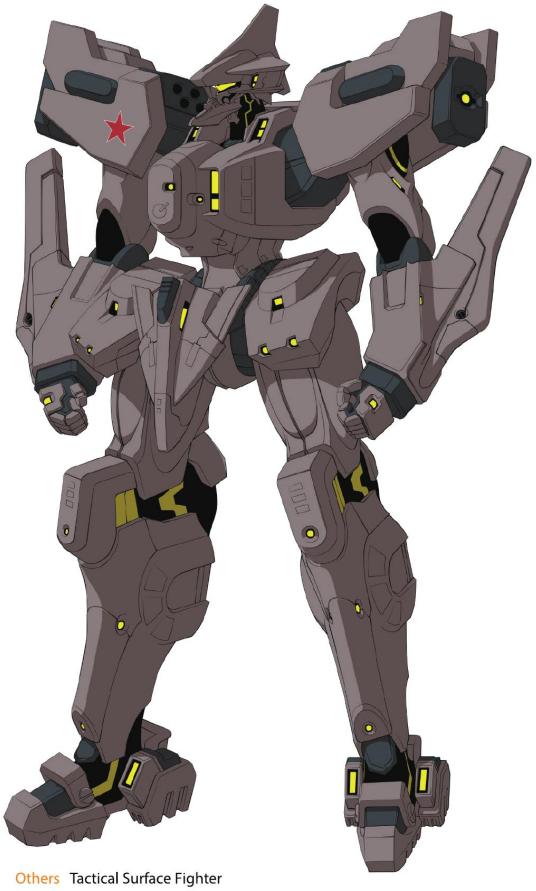
Its design adds additional emphasis to its mobile dogfighting abilities, by reducing the weight of its components and adopting a variable mechanism on the jump unit's aileron. From these, it has reached quasi-2nd generation capabilities, though it is still considered a 1st generation craft by much of the West.

Even though it was an imitation of technologies originating from the US(※), it was a historical achievement in that all of its components were sourced domestically. This was what had truly launched independent TSF developments in the Soviet Union.

SPECIFICATION

Model Number	MiG-23
Generation	Quasi-2nd
Year of Deployment	1980
Manufacturer	Mikoyam Guluvich
Jump Unit Engine	K-35-300
Height	17.6m

※ The control block is a genuine licensed production from Markin Berger.



Soviet Union
MiG-27 Aligatori
[Mikoyam Guluvich]

The MiG-27 Aligatori is a 2nd generation TSF developed by Mikoyam Guluvich, and was deployed across the Soviet Armed Forces in 1983.

In 1981, there was a deep seated distrust of the MiG-23 Cheburashka by frontline personnel of the Soviet Union. This resulted from the poor state of the initially deployed model, due to it being rushed to the front lines by the military HQ, as well as the poor conditions it was operated under, worsened by a lack in experienced support crew.

Even after the deployment of a refurbished model that had better maintainability, it was difficult to erase this stigma against it, despite the improved combat results. In fact, calls for further upgrades to be made on the MiG-21 Balalaika were pouring in from the front lines.

In response to these calls, Mikoyam Guluvich directed attention to the combat results of the East German Army's MiG-23, stating that there were no issues with the craft itself. However, this inevitably pointed out the inferiority of the Soviet Armed Forces on the front lines and left the military leadership bitterly resentful, as they had lost face.

As the Western countries prepared to deploy their 2nd generation crafts, the Soviet Union tried desperately to avoid having to extend the life span of their 1st generation crafts. While secretly ordering Sufoni to develop a new replacement craft, they ordered Mikoyam Guluvich to submit a proposal to resolve the situation.

Mikoyam Guluvich then presented further upgrades on the latest model at the time, the MiG-23M, which aimed to increase its operative time and its mobility, while greatly changing its exterior to strengthen its communications and detection abilities. These proposed changes were of a magnitude closer to a re-design, rather than an upgrade.

This proposal primarily focused on removing the stigma of the craft, so changes were made to the form of various components, especially to the head and forearms, which had been newly designed from scratch, as these are the features that most noticeably sway the impression of a craft.

Furthermore, when it was found that almost 90% of this craft would be built with new parts, it was given the formal designation MiG-27 Aligatori by Soviet military headquarters in order to completely distance it from the MiG-23 Cheburashka.

SPECIFICATION

Model Number	MiG-27
Generation	2nd
Year of Deployment	1983
Manufacturer	Mikoyam Guluvich
Jump Unit Engine	K-35-300
Height	17.7m

Soviet Union

MiG-29 Lastochka

[Mikoyam Guluvich]

The MiG-29 Lastochka is a 2nd generation TSF developed by Mikoyam Guluvich.

In 1984, Mikoyam Guluvich attempted to redeem themselves from the disasters of the MiG-23 Cheburashka and the MiG-27 Aligatori, which were already considered outdated at the time of their respective deployments, by setting out on advanced TSF research and development, influenced by the ATSF Program.

However, there was too great of a gap between them and the US in science, technology, and accumulated development knowledge, resulting in a stalling of the program. After several years of fundamental research, they were forced to adopt a new direction, which plagiarized the US Armed Force's concept of the High-Low-Mix Initiative.

Mikoyam Guluvich developed two crafts based on this initiative, the Ye-155 (later MiG-25) and the 9/12 (later MiG-29). The Ye-155 was a large craft, specialized for self-contained hive capturing with abilities in support bombardment and high speed assaults, and was developed from F-15 Eagles salvaged from battlefields without permission. The 9/12 was a lightweight, high-speed, and multi-role craft with powerful medium to dense close quarters dogfighting abilities, and was developed from data on the YF-16 and YF-17, gained through espionage.

The development of the Ye-155 progressed steadily, and the craft would reach combat deployment in 1987 as the MiG-25 Spirt-Voz. Soon after, in 1990, the refurbished craft, the MiG-31 Plamya Lisa, saw combat deployment. However, what the front line needed most at the time was a craft with high close combat abilities, since both the MiG-25 and 31 were not highly regarded in these aspects.

With each passing day, the military began to expect more and more of the 9/12, but its development faced difficulties, as there was no physical reference craft for it to imitate. Furthermore, Soviet military leaders, too eager to secure G-elements, ordered their own independent hive capturing operations, with the MiG-25 and 31 as the main force. With these ending in complete failure, Mikoyam Guluvich Design Bureau was left on the ropes.

The bureau's leaders had acquired complete F-16 Fighting Falcons and F-18 Hornets in top secret from the Communist Party of the Third United Front, and sought to overcome this precarious situation by making progress on the development of the 9/12. However, in 1992, Sufoni dealt another blow to Mikoyam Guluvich, with the combat deployment of their large, multi-role TSF, the Su-27 Zhuravlik, ending Mikoyam Guluvich's monopoly of mainline crafts in the Soviet Armed Forces.

Although unofficial, the Su-27 was in fact a collaborative development with Western manufacturers, and it would become the first Soviet made multi-role TSF that would meet the global standard.

Since the Su-27 surpassed both the MiG-25 and 31 in many aspects and also possessed strong close quarters dogfighting abilities, its formal adoption was thought to be the end of the 9/12's development.

However, Mikoyam Guluvich were graced by an unexpected stroke of luck. During the combat operation of the Su-27's initial model, Sufoni ran into hardware troubles typical of a newly appointed manufacturer. This caused a significant decline in the operational rate of the Su-27, earning the distrust of military leaders, and resulting in a large reduction in planned procurement numbers.

Mikoyam Guluvich had won in terms of combat operation results, and didn't miss the opportunity to propose to military leaders their own take on the Soviet High-Low-Mix Initiative, which expanded on their development policy.

The 'High' was to be a refurbishment on the Su-27 Zhuravlik, whereas the 'Low' would be the 9/12. They argued that an increase in the overall performance of Soviet-made TSFs would be possible if technology and parts were shared between them and Sufoni. Their plan was approved.

The 9/12's development instantly accelerated after Sufoni's donation of Western technologies. Even while conducting design changes such as adopting motor blades as standard equipment, within a mere two years, they completed a prototype that would soon be ready for mass production.

The 9/12 prototype demonstrated high capabilities across a series of operational tests and evaluations, and was given the official designation MiG-29 and the nickname Lastochka, Russian for 'swallow', because of its high mobility and maneuverability. Essentially, it brought back Mikoyam Guluvich Design Bureau's position of being a mainline TSF manufacturer.

The MiG-29's deployment was prioritized to Europe, and was off to a steady start, but the curse of Mikoyam Guluvich still loomed.

Starting with the Imperial Japanese Shiranui, which had coincidentally been deployed the same year, it seemed imminent that the Western Bloc nations would convert their equipment to 3rd generation crafts. Even 2nd generation crafts were seeing upgrades into 2.5th generation crafts, such as the F-18E Super Hornet.

Once again, Mikoyam Guluvich's cutting-edge craft was obsolete by the time of its deployment.

On the other hand, Sufoni, which had exchanged their Western technologies for MiG's accumulated knowledge and highly reliable technologies, released the 2.5th generation Su-37 Terminator, a refurbishment of the Su-27 Zhuravlik, in 1997. By being highly extensible, it attained the position of the Soviet Armed Force's mainline craft.

Following this, the domestic procurement of the MiG-29 was halted and it began to be exported to numerous nations, as a strategic resource to secure international influence.

Although the MiG-29 had missed its chance to be adopted on a full scale in the Soviet Union, it was formally adopted by many countries, including those in the Eastern European Socialist Alliance (formerly Warsaw Treaty Organization), the Middle East, and in Africa.

It was also well received for having specifications rivaling those of the F-16 Fighting Falcon and the F-18 Hornet, while vastly surpassing both in dense, close quarters dogfighting abilities, and in terms of cost. As a result, many local specification versions have been produced across the globe.

One such craft is the MiG-29OVT (MiG-35, a 3rd generation craft), which received many refurbishments as part of an official technological cooperation with Northrock Grunnan. It achieved such a great improvement in specifications, that it was called the 'Eagle of the East'. It is currently undergoing comparative trials against the Su-47 Berkut (estimated to be 3rd gen) to reclaim its position of the mainline craft of the Soviet Armed Forces.

Since they are crafts that had been refurbished through official collaborations with western corporations, the MiG-29OVT and MiG-31SM are usually referred to by their NATO codes. These are 'Fulcrum' and 'Foxhound', respectively.

SPECIFICATION

Model Number	MiG-29
Generation	2nd
Year of Deployment	1994
Manufacturer	Mikoyam Guluvich
Jump Unit Engine	KD-33

Soviet Union

MiG-25 Spirt-Voz

[Mikoyam Guluvich]

The MiG-25 Spirt-Voz is a 2nd generation TSF developed by Mikoyam Guluvich.

Development History

Having gained experience from the license production of McDaell's F-4 Phantom, Mikoyam Guluvich began researching the F-5 Freedom Fighter in regards to its maintainability and close quarters dogfighting capabilities. From this, they succeeded in developing the MiG-21 Balalaika as their own refurbishment of the license production craft, the F-4R.

Backed by the Soviet Union government, which disliked sourcing their main armaments from old enemies, Mikoyam Guluvich proceeded to develop the 2nd generation crafts MiG-23 and 27, even while still sharing fundamental technologies and concepts with those of McDaell.

However, with their deficiencies in fundamental development technologies and the loss of infrastructure from having to continually fall back, those crafts would never be able to reach the specifications of Western mainline crafts.

At the same time, development of 3rd generation crafts (ATSF Program) had commenced in the US, following the LWTSF Program (development of the F-16/F-18). This induced the Soviet Union into a state of panic, and so it started its own advanced TSF development program, the MFPTI program, in response.

A Soviet version of the High-Low-Mix Initiative had commenced, using the self-contained hive capturing craft, the YE-155 (which would later become the MiG-25), which boasted abilities for support bombardments and high speed assaults, alongside the 9/12 (which would later become the MiG-29), a lightweight, highly mobile multi-role craft, with powerful mid-to-close range dogfighting abilities.

However, with no development technologies to support these high specifications, the program hit difficulties, as expected.

The Communist Party government, frustrated by the huge technological gap between themselves and the US, managed to complete a re-design of the F-15, based on their unique operational concepts, just as they had designed their MiG-21 from the F-4. They did this by secretly salvaging remains of F-15 Eagles, in order to research American 2nd generation technologies.

The Ye-155 was completed as the first full scale Soviet TSF since the MiG-21, and was given the formal designation MiG-25. It commenced frontline deployment in 1987.

SPECIFICATION

Model Number	MiG-25
Generation	2nd
Year of Deployment	1987
Manufacturer	Mikoyam Guluvich
Jump Unit Engine	K-15BD-300

Soviet Union

MiG-31 Plamya-Lisa

[Mikoyam Guluvich]

The MiG-31 Plamya-Lisa is a 2nd generation TSF developed by Mikoyam Guluvich.

Development History

In response to requests from the military, which had grown worried over the severe decline in Surface Pilot numbers as a result of their inferiority to the BETA forces, the Soviet leadership sought to revise their anti-BETA strategy, which had revolved around nuclear weapons. They then ordered the domestic design bureaus to develop a craft with a higher survival rate.

Mikoyam Guluvich began to develop the MiG-31 by upgrading the MiG-25 so that it could use the AIM-54 Phoenix, an American anti-BETA cluster missile, instead of guided nuclear missiles. The refurbishments steadily progressed with the introduction of Western technology, and by 1987 it commenced combat operations. In stark contrast to its original craft, it was given the nickname 'Plamya-Lisa', meaning 'Flame-Fox', by frontline Surface Pilots who valued its supple mobility and fire power.

Characteristics

The retrofitting of American-made avionics accompanying the AIM-54's adoption allowed for greater abilities in detection and electronic warfare, as well as an astonishing increase in the craft's own capabilities, like its responsiveness. In order to ease the burden on Surface Pilots from the increased specifications of the craft, and its ability to take on additional roles, it adopted a multi-seat control unit. With the fire control specialist in the rear seat, the precision of attacks was also increased.

Furthermore, by adopting newly developed lightweight, composite armor, the craft's weight was greatly reduced.

Its mobility increased by approximately 40%, and this, combined with the base craft's existing long-range invasion abilities, high-speed straight-line movement, and high armament mounting abilities, resulted in greater mobile, close quarters dogfighting abilities.

Its combat survivability had reached the standard of 2nd generation Western crafts.

SPECIFICATION

Model Number	MiG-31
Generation	2nd
Year of Deployment	1990
Manufacturer	Mikoyam Guluvich
Jump Unit Engine	KD-36F

Soviet Armed Forces

Project 1.42/1.44

[Mikoyam Guluvich]

Mikoyam Guluvich began developing Project 1.42 in 1984 as part of the Soviet Union's МФПТИ (MFPTI; Multifunctional Frontline TSF) Project.
In order to recover from the failures of the MiG-23 and 27 being mediocre 2nd generation TSFs, Mikoyam Guluvich commenced this 3rd generation development to rival the ATSF Program. In 1994, the 1.44 prototype was unveiled as a concept demonstrator craft.
Although the 1.42 and 1.44 are similar in many respects, the 1.42 is said to consider stealth abilities more in its design.
However, their details mostly remain a mystery, and it is unclear whether they will be formally adopted.

SPECIFICATION

Model Number	Project 1.42/1.44
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Mikoyam Guluvich
Jump Unit Engine	ALS-31

Soviet Armed Forces

Su-11

[Sufoni]

The Su-11TM is a 1st generation TSF developed by Soviet design bureau Sufoni. It is based on Northrock's F-5 Freedom Fighter.
By 1974, the BETA invasion was gradually encroaching on Soviet territory by advancing northwards through Eurasia. In preparation for the inevitable full invasion, Soviet leadership declared an emergency and imported the F-4R from McDaell Doglam, over the course of 1974 and 1975.
Unfortunately, it was impossible to match the craft's specifications to the country's needs so quickly, as the F-4 Phantom had only just been developed. Although the R in F-4R stands for Russia, it signifies little more than a cold climate specification.

SPECIFICATION

Model Number	Su-11
Generation	1st
Year of Deployment	Prototype
Manufacturer	Sufoni
Jump Unit Engine	ALS-7F-2

Soviet Armed Forces

Su-15

[Sufoni]

The Su-11 was the Soviet Union's first attempt at domestically producing a TSF. It was developed by Sufoni, using the F-5 Freedom Fighter as a base, since the Soviet Armed Forces leadership was dissatisfied with the dogfighting ability and the production potential of the F-4R.
However, even while being a complete copy of the F-5, to the extent of being nicknamed the 'F-5R', it was inferior to it in continuous operational time and armament mounting capacity. It was so poorly received, that it did not reach mass production, even though it was given an official designation.

SPECIFICATION

Model Number	Su-15
Generation	1st
Year of Deployment	Prototype
Manufacturer	Sufoni
Jump Unit Engine	K-13-300

Soviet Armed Forces
Su-27 Zhuravlik
[Sufoni]

The Su-27 Zhuravlik is a 2nd generation TSF that excels in mobile, close quarters dogfighting.

The selection of Alternative 3's craft ended with the controversial adoption of the F-14AN3, a refurbishment of the American-made F-14. This overturned the convention that the host country (in this case, the Soviet Union) would provide the equipment for its program.

The reason for this was the overall poor performance of not only the latest Soviet craft at the time, the MiG-25 and 31, but of all formally adopted TSFs (which had all been developed by Mikoyam Guluvich). Sufoni was then assigned with the operation and maintenance of the F-14AN3.

During their duties, Sufoni gained technological insights into TSF development, and also established a strong connection with Grunnan.

Later, Grunnan would not be selected for the ATSF program, and due to their poor financial situation, they secretly offered technological information regarding the F-14 Tomcat. After merging with Northrock, Grunnan also offered information about the F-18 Hornet.

Sufoni's own developments were based on this information, and they were able to create a craft with high mobility, despite its large size, much like the F-14.

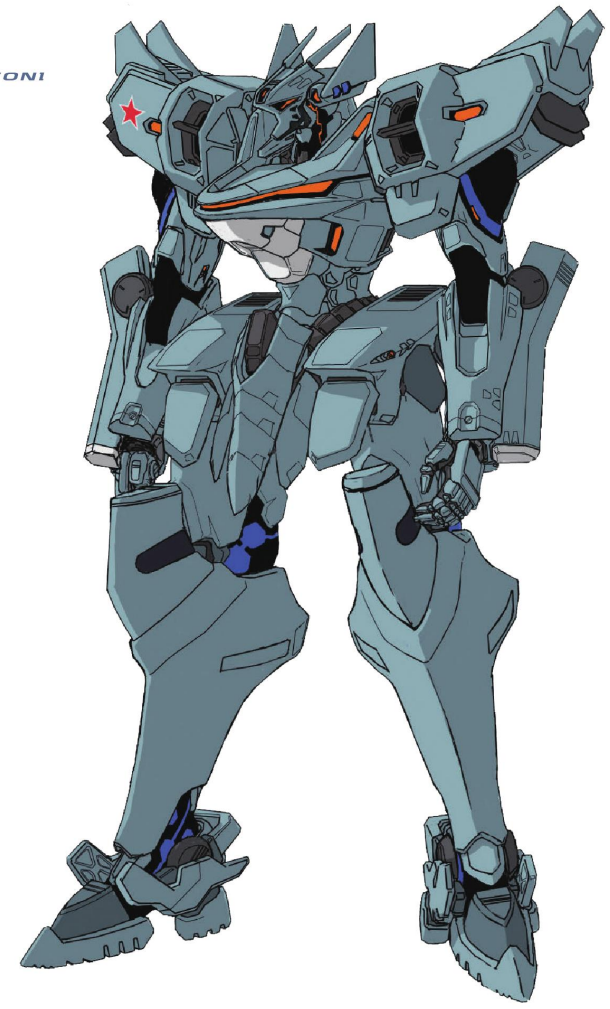
With the assumed close quarters combat in hive interiors, the Su-27 became a craft loaded with many fixed armaments, such as the newly developed close quarters weapon, the 'Motor Blade', on both forearms, as well as super carbon blade vanes across its airframe.

These were very well-received in combat and became standard equipment for successive Soviet-made TSFs.

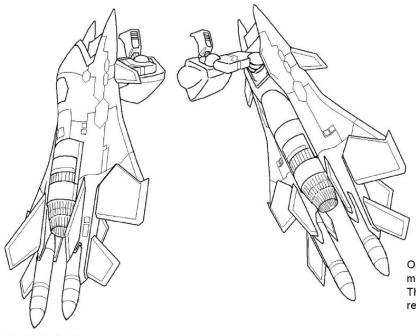
At the time of its introduction, it was faced with an endless stream of minor issues related to its high requested specifications and the rushing of its combat deployment.

The Soviet Armed Forces responded by quickly formally adopting Sufoni's 3rd-generation proof-of-concept craft, the Su-27M2, as the Su-37 Terminator. As this caused them to also significantly reduce the procurement numbers of the Su-27, it became less known compared to the Su-37.

Sufoni continued their own refurbishments to the craft, leading to the Su-27SM, their latest upgrade model. This model would achieve high specifications and reliability, which would garner international acclaim as a possible rival to the F-15.



SPECIFICATION	
Model Number	Su-27
Generation	2nd
Year of Deployment	1992
Manufacturer	Sufoni
Jump Unit Engine	ALS-31
Height	19.5m



On the Su-27M2/37, a forewing-shaped blade was mounted on the jump unit to increase mobility. This was also applied to the Su-27SM, the modernized refurbishment of the Su-27.

Su-27 Derivatives

Su-27	Initial type
Su-27SM	A modernized refurbishment of the Su-27
Su-27SK	A licensed production used by the Third United Front, where it is called the Jian-11 (J-11)
Su-27M2	A demonstrative test craft with increased motility, later formally adopted as the Su-37
Su-33	A navy specification that can be loaded into vessels for operation with TSF carriers
Su-32	Su-32 - A variant able to use long-range suppressive guided missiles, like the F-14 Tomcat. It was adopted as the updated craft of the MiG-25/31
Su-37UB	Su-37B - A multi-seat variant of the Su-37
Su-47	Su-47 - A hive-capturing specification craft that pushes the limits of the Su-37 to create the ultimate mobile close quarters dogfighting craft

Third United Front

J-11 Type 11 (Su-27SK)

[Shenyang]

The Su-27 Zhuravlik, a 2nd generation TSF, commenced deployment in the Soviet Armed Forces in 1992. It was developed by Sufoni, a strong Soviet TSF developer, able to stand toe-to-toe with Mikoyam Guluvich, after being offered technical data of the F-14 Tomcat by Northrock Grunnan. However, its procurement numbers dropped drastically after the Su-37 was formally adopted ahead of schedule.

While being a large craft, equivalent in size to an F-14 Tomcat, its mobility and close quarters dogfighting abilities rivaled those of the F-16 Fighting Falcon. As they had met the thoughtlessly conceived specifications through sheer force, the initial model was riddled with problems, making it unpopular among frontline Surface Pilots.

SPECIFICATION	
Model Number	J-11/Su-27SK
Generation	2nd
Year of Deployment	1996
Manufacturer	Shenyang
Jump Unit Engine	ALS-31

Soviet Armed Forces
Su-37M2 Терминатор (Terminator)
[Sufoni]

A large 2.5th-generation TSF that commenced deployment in 1997.

Ever since their responsibilities with the F-14AN3, Sufoni had maintained close and secret cooperation with Grunnan, who supplied them with trial data of the experimental X-29. By 1996, Sufoni was continuing its independent research and development of the Su-27M2 demonstrator trial craft, with the goal of establishing 3rd-generation development technology.

On the other hand, the Soviet leadership was alarmed and pressured by the rapid and successive deployments of 3rd-generation TSFs in western countries, so they focused on the high specifications of the Su-27M2. In order to quickly adopt their own official 3rd-generation TSF, they stopped procuring the Su-27, gave the Su-27M2 the designation of Su-37, and formally adopted it instead.

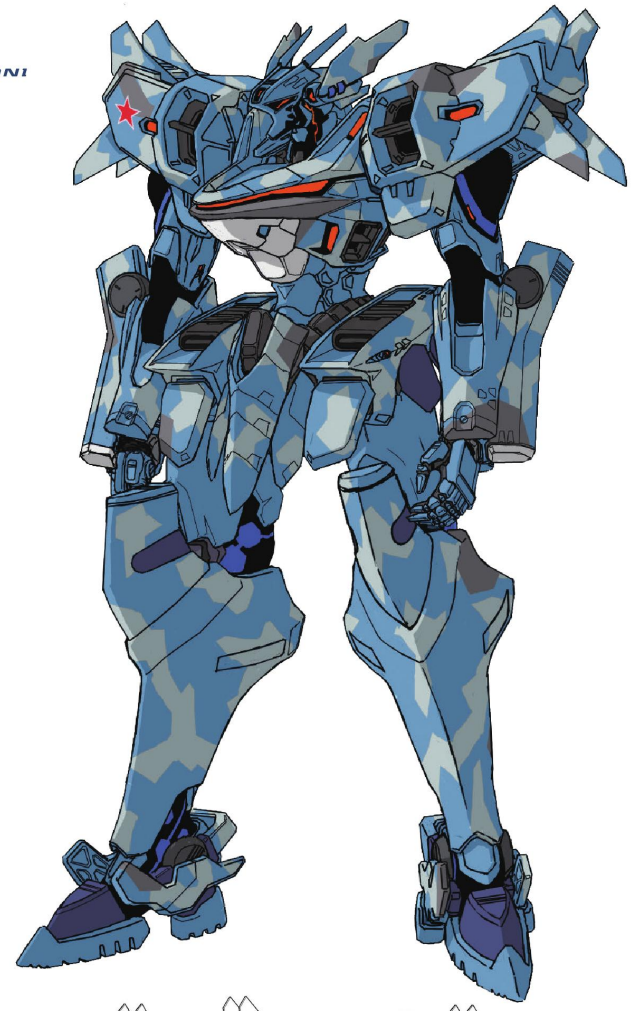
The Su-37 is essentially an expansion of the Su-27 that retains the basic airframe layout and external form. However, its close quarters dogfighting abilities were further strengthened, and the number of blade vanes on each shoulder block was increased from two to four. Finally, vectoring thrusters were added to its waist block in order to increase mobility and maneuverability.

Furthermore, the avionics, which have traditionally been a weakness of Soviet craft, have had their reliability and capabilities significantly improved through the cooperation with Northrock Grunnan.

The Soviet Union calls the Su-37 its first domestic 3rd-generation craft, but the West still considers it to be a 2.5th-generation TSF.

Finally, though its nickname had originally remained as 'Zhuravlik', the designation given to it by the West was 'Terminator'. Sufoni then adopted this nickname in Russian as Терминатор (transliterated as 'Terminator').

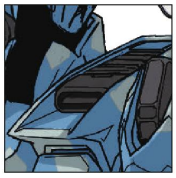
SUFONI



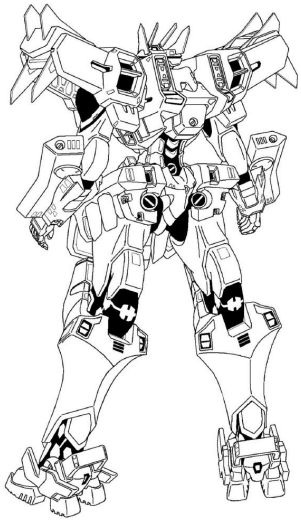
SPECIFICATION	
Model Number	Su-37M2
Generation	2.5th
Year of Deployment	1997
Manufacturer	Sufoni
Jump Unit Engine	ALS-37F
Height	19.5m

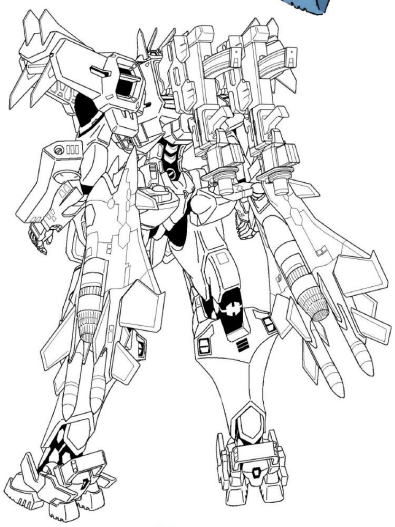


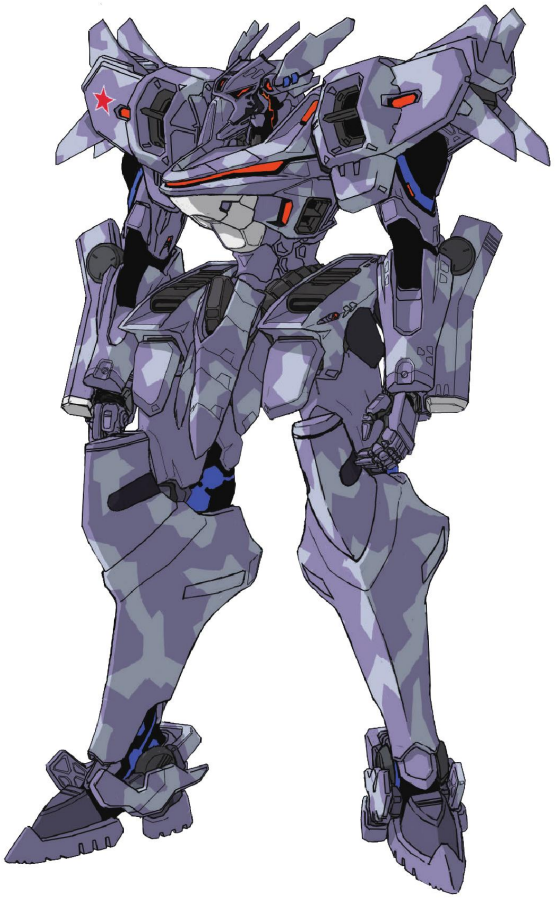
Blade vanes were added to the lower side of the shoulder blocks.



Its thrusters, attached to the waist, are able to emit thrust from the jump unit to the front of the TSF, and closely resemble the YF-23's mechanism.







Soviet Armed Forces

Su-37UB Терминатор (Terminator)

[Sufoni]

SUFONI

This is the multi-seat control unit variant of the Su-37. By sharing the airframe and fire controls, it seeks to reduce the burden on the Surface Pilots.

It is said that it was influenced by the American-made F-14 Tomcat, and F-18 Hornet, which were developed with the same multi-seat operation in mind.

SPECIFICATION	
Model Number	Su-37UB
Generation	2.th
Year of Deployment	1997
Manufacturer	Sufoni
Jump Unit Engine	ALS-37F
Height	19.5m



Soviet Armed Forces

Su-47 Беркут (Berkut)

[Sufoni]

SUFONI

The Su-47 Berkut is a 3rd generation, local specification craft developed by Sufoni as frontline equipment for special forces specialized in capturing hives, so that the Soviet Union could finally achieve its earnest goal of retaking its territory.

Its redesign has focused on dense dogfighting that occurs during combat to capture or suppress hives. It has actively introduced state-of-the-art technologies from the West, including cutting-edge avionics and OBL, which had been publicly offered in an international corporate alliance.

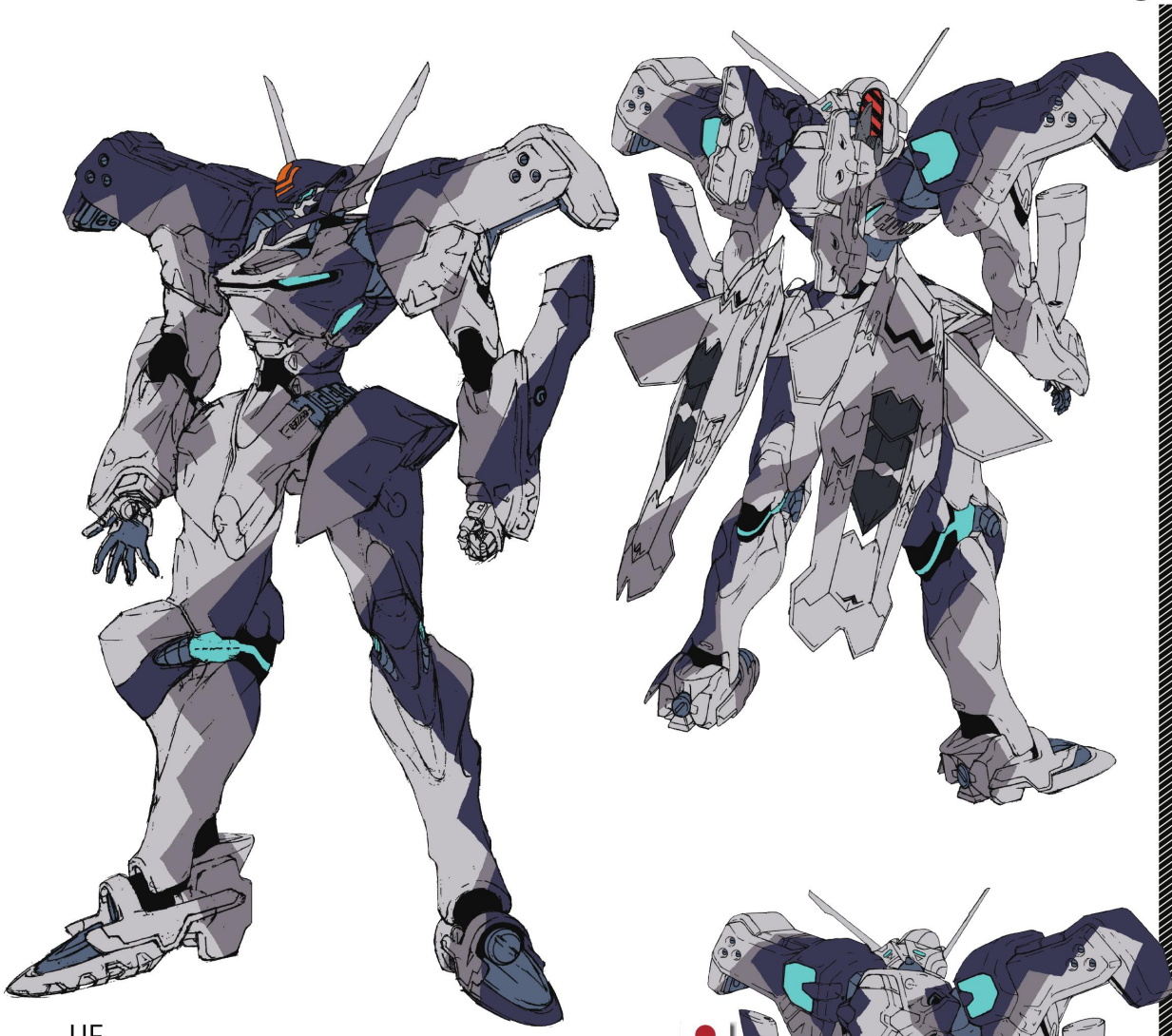
These were mainly to assist in attitude control, which had become more difficult, since the addition and enlargement of super carbon blade vanes for greater close quarters combat abilities affected the craft's aerodynamics.

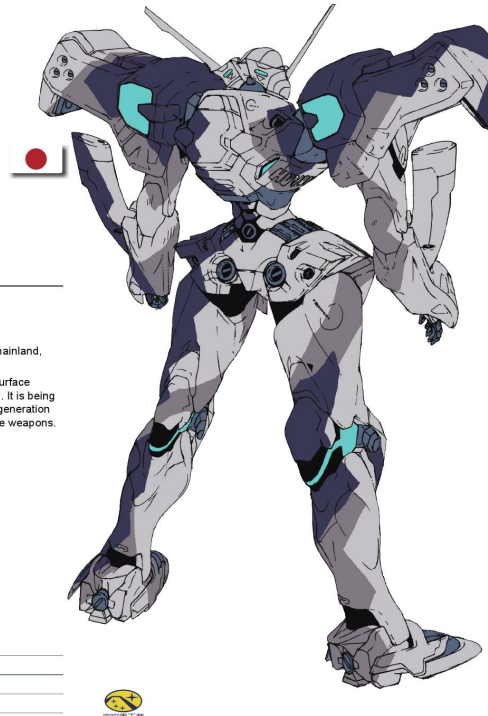
However, this is definitely neither a 'design miss' nor an unintended negative factor.

The airframe aerodynamics, the high efficiency and output of the newly designed jump unit (although is retains the fundamental form of prior units), and the precise post-stall area control of the latest avionics all gave it unprecedented mobility, reputed as '3-dimensional polygonal movement' even despite it being one of the largest TSFs.

Additionally, retrofitting the newly designed large main legs also increased the amount of fuel that could be stored in the craft's airframe, and extended the operational time by 30%. As a result, it gained the advantage over other Soviet-made TSFs in terms of hive capturing missions, where supplies can't easily be obtained.

SPECIFICATION	
Model Number	Su-47
Generation	3rd
Year of Deployment	1999
Manufacturer	Sufoni
Jump Unit Engine	ALS-37FU
Height	21.7m





IJF
Shiranui Type 94-1C
[Fugaku, Mitsuhishi, Kawazaki]

In order to reach the high specifications required of it, the Shiranui had its design pushed to the limits, leaving little room for further expansions.

It excelled in its basic specifications and in both its operation rate and maintainability. However, its ambitious design would work against it. Over the natural course of any craft, requests for improvement are sure to arise, but for the Shiranui, responses to these requests were delayed as refurbishments hit difficulties.

Even under such conditions, there were still means to further increase the Shiranui's abilities. Firstly, the capacity of its main engine and the output of its jump unit's engine were both increased. Next, to increase its responsiveness, its airframe was strengthened and the layout of the carbonic actuators was changed. With these refurbishments, the Shiranui Type 94-1C was born in 1998 as an improved prototype craft.

With these refurbishments to the overall output, its close quarters dogfighting abilities and survival rates also greatly improved, but it ran into a problem where its operational time vastly underperformed initial expectations.

As a desperate last resort, it was given an exclusive OS that electronically controlled the fuel consumption and output, to keep it within the required specifications. However, this countermeasure had serious side effects on its mobility characteristics, making it a craft so difficult to control that regular Surface Pilots couldn't even bring it to the same standard as it had been before its refurbishment.

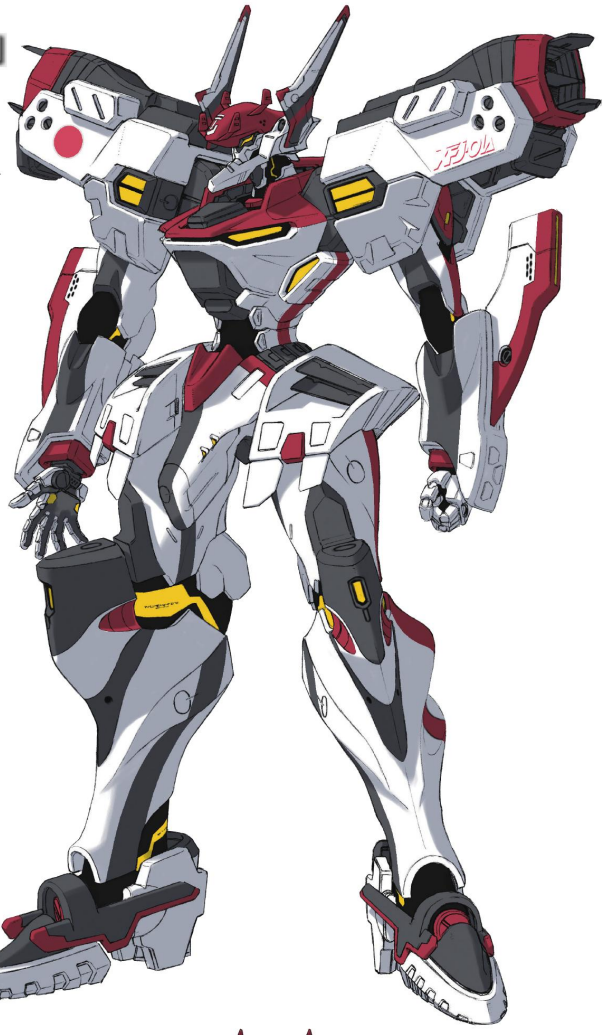
Although it seemed almost certain that procurement of the craft would not go ahead, a hasty decision to procure 100 of the 'N' specification craft, which omitted the dedicated OS, would be made. This was in response to the significant losses of forces resulting from the BETA's large-scale invasion of the mainland, which had occurred in July of the same year.

After its deployment, it was well received by veteran Surface Pilots, who could expertly control the fuel consumption. It is being used by development test units as a test bed for next-generation TSF development and for operational trials of prototype weapons.

SPECIFICATION	
Model Number	TSF-Type94-1C
Generation	3rd
Year of Deployment	1998
Manufacturer	Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE108-FHI-225
Height	19.7m

富嶽重工業
光菱重工
河崎重工

IJF
Shiranui Second XFJ-01a Demonstrator Color
[Boening, Fugaku, Mitsuhishi, Kawazaki]



A refurbishment of the Shiranui, which commenced operational trials in 2001. Its development has focused on matching its mobility and maneuverability to the 3rd-generation craft of other countries, increasing its operational time by at least 30%, and limiting the effects on mobility when carrying its maximum load of armaments.

With the impending retirement of the Gekishin, the IJF hurried to secure a replacement and ordered developers to perform refurbishments on the Shiranui.

However, since the developers were pouring everything into the development of a successor to the Shiranui and Takemikazuchi, they no longer had the means to grapple with the technological problems that had been revealed by the Shiranui Type 94-1C.

Their attempt at this task was in the launching of the XFJ Program as a Japanese-US joint TSF development program, after a proposal by Lieutenant Colonel Iwaya Eiji, the vice president of the 1st Arsenal Development Authority.

Mitsuhishi, Fugaku, and Kawazaki, the original developers of the Shiranui, teamed up with Boening corporation (previously McDaell Doglam), which had a proven track record of exports to Japan, from the F-4J Gekishin to the F-15J Kagerou.

The Lieutenant Colonel sought to revive domestic craft development by incorporating the state-of-the-art technology and the accumulated experiences from Boening's advanced technology research department, 'Phantom Works'.

The Phase 1 test craft of the Shiranui Second sought to solve the Type 94-1C's problems with operational time by using newly developed American parts, which had high output efficiency and consumed little power.

The jump unit's main engine was also retrofitted to one with higher output, the FE140, made by General Electronics.

The demonstrative and frontline combat trials of the Phase 1 test craft left a positive impression, so the program proceeded to trials using the Phase 2 test craft.

Its exterior was retrofitted to the MISIP module, which had been cultivated in the Phoenix Initiative. Also, by adding a cutting-edge, active electronic scanning radar to its head, and mounting a tactical, forward-looking infrared device, it was given improved enemy detection and target acquisition abilities.

Furthermore, in order to respond to the increased output of the jump unit, its ratio of high-mobility to standard movement during operations was increased, and the amount of propellant loaded was increased by lengthening and expanding the leg parts.

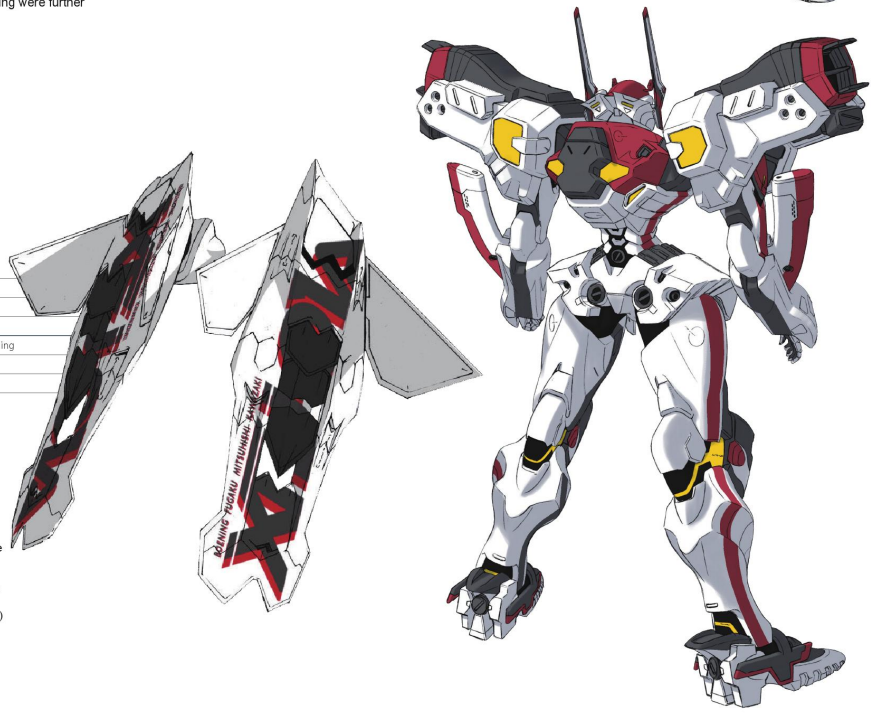
Its aerodynamic properties had been improved by the disclosure of secret data from the Advanced Technology Demonstrator Program (ATDP). Finally, the time between selecting and equipping armaments was reduced by improving the deploying mechanism on the rear blade mount and the sub arm of the side armament system, located on the forearm.

Through these improvements, the Shiranui's already high capabilities in mobile, close quarters dogfighting were further increased.

BOENING

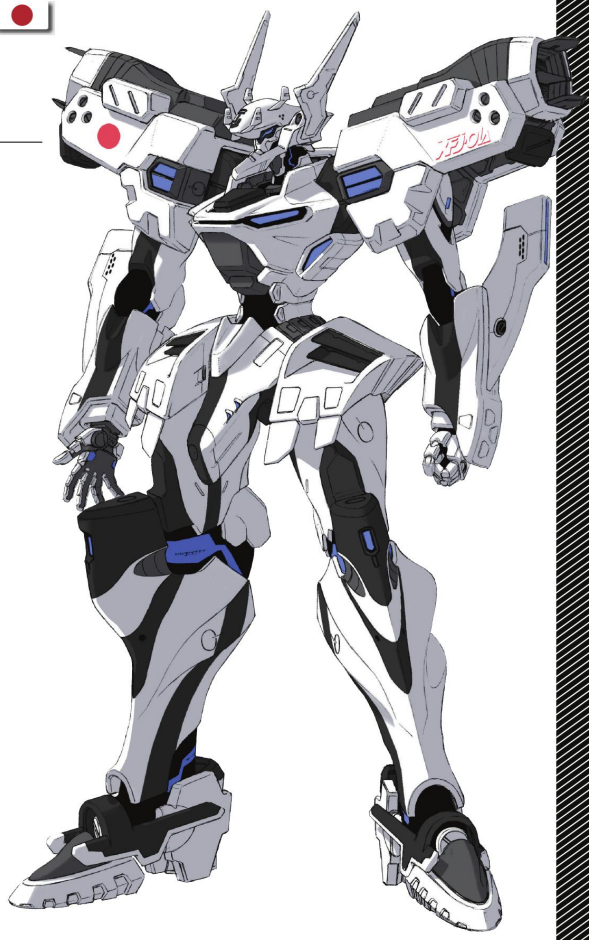
光菱重工

SPECIFICATION	
Model Number	XFJ-01a
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Fugaku, Mitsuhishi, Kawazaki, Boening
Jump Unit Engine	FE140-GE-100
Height	19.8m



On the paint coat used in the rollout ceremony, the logo of the XFJ-01A and the names of the manufacturers involved in its development were placed on the jump unit. Company logos were not applied to the jump units of the 1st model (white/black) and the 2nd model (dark purple-gray) after they were repainted. Instead, the jump units were painted the same color as the airframe.

IJF
Shiranui Second XFJ-01a
[Boening, Fugaku, Mitsuhishi, Kawazaki]

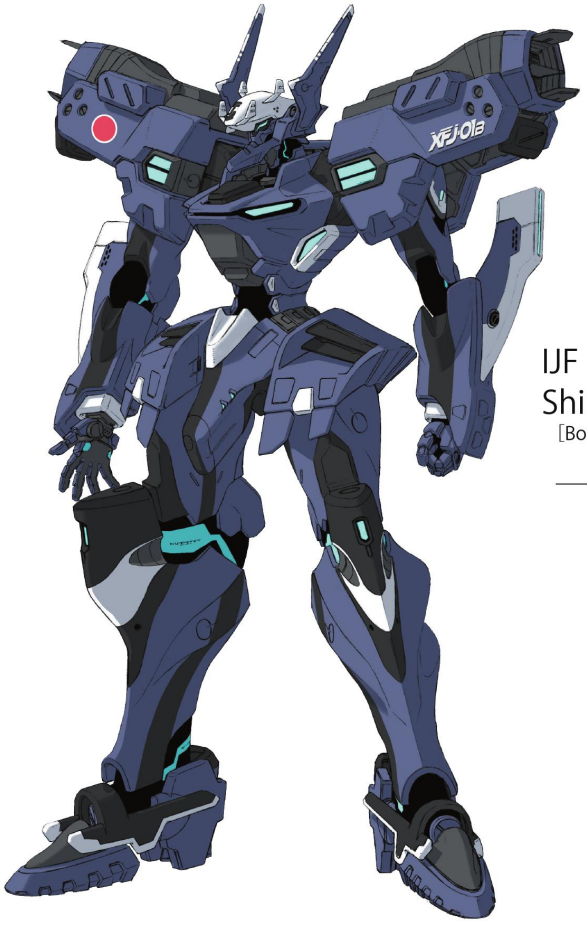


At the roll-out ceremony of Trial Craft 1, it had a color scheme of red, white and black. In its participation in the Blue Flag exercise, a simulated battle between TSFs, the maintenance crew repainted the red parts by hand at the request of the test pilot, who wanted to minimize the visibility of the unit, and it was changed to a white and black monotone color scheme. At that time, the spare parts of Trial Craft 2 were used for the yellow sections of the craft, the forehead radar cover and the monitor shield, in an attempt to reduce the work needed.

The craft is equipped with the FE 140 made by General Electronics (GE). The test pilot is Yuuya Bridges, from the Argos Test Flight.

BOEING
富岳重工業
光菱重工
川崎重工

SPECIFICATION	
Model Number	XFJ-01a
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Fugaku, Mitsuhishi, Kawazaki, Boening
Jump Unit Engine	FE140-GE-100
Height	19.8m



IJF
Shiranui Second XFJ-01b
[Boening, Fugaku, Mitsuhishi, Kawazaki]

This craft uses the FE-133-PW-100, manufactured by Prats & Whitney (P&W), as its main engine. It underwent comparative tests against Trial Craft 1.

Later, a main engine more suited to the required specifications was selected and mounted on the formally adopted craft. Its color scheme is based on a dark purple-gray. 2nd Lieutenant Tarisa Manandal from Argos Test Flight was its test pilot.

BOEING
富岳重工業
光菱重工
川崎重工

SPECIFICATION	
Model Number	XFJ-01b
Generation	3rd
Year of Deployment	Prototype
Manufacturer	Boening, Fugaku, Mitsuhishi, Kawazaki
Jump Unit Engine	FE133-PW-100
Height	19.8m

French Republic

Rafale

[Dass Ault]

The Rafale is a 3rd generation TSF specializing in medium to close range combat. It was developed by French manufacturer Dass Ault.

In 1985, France withdrew from the ECTSF Program due to disagreements over the selection of the main engine and the craft's specifications, as well as the significant delays in development. France then set its sights on independently developing a next generation TSF that would be the successor to the 2nd generation Mirage 2000.

Immediately following this, global BETA activity suddenly escalated and conditions across the world's battlefields deteriorated.

The French government decided to respond to the requests of their frontline personnel by prioritizing an upgrade plan of the Mirage series TSFs, which had already been deployed. The resources for this plan were taken from the Rafale Program.

However, the Rafale's stagnation ended up as a positive, as it gave even more time to research the next generation technologies, which were unknown at the start of the program, and time to research 2nd generation crafts from the US.

Whereas the common standard of American and European crafts was for over-engineered specifications, this design concept only slowed down the development of the Rafale. France embraced simplifications across the craft, but remained uncompromising in fundamental parts such as the control block, the armor material, carbonic actuators, and the shells used. The simplifications led to their success of having the first prototype craft being rolled out in 1994, only a mere five years since it was formally allocated a budget.

The development program ended with overall satisfactory results, due to achievements such as commencing combat operations in 1998.

The Rafale bore many similarities with the EF-2000 Typhoon, such as its design concept and appearance. However, this is to be expected, as their operational objectives and tactics are the same, not to mention they were based on the shared outcomes of the ECTSF, including basic and new generation technologies.

A rumor has been circulating that the similarity between the European next generation crafts such as the Rafale and Sweden's JAS-39 Gripen is due to secret technological assistance from Imperial Japan, though these rumors have not been confirmed.

On the other hand, their types of armaments are very unique and reflective of French operational concepts and tactics. These include the FWS-G1 Assault Cannon, a melee blade called the Falcate Sword, and saw blade shaped blade vanes on its arms.

As of 2000, just over a hundred crafts are in operation in the French Army, and a majority of these have been deployed to the expeditionary forces on the Suez Canal defense line.

SPECIFICATION

Model Number	Rafale
Generation	3rd
Year of Deployment	1998
Manufacturer	Dass Ault
Jump Unit Engine	S88

French Republic

Mirage 2000

[Dass Ault]

The Mirage 2000 is a 1.5th generation TSF developed by French manufacturer Dass Ault. It commenced combat deployment in 1981.

Development History

While refurbishing the F-5 to their own domestic specifications (the F-5F Mirage III), the French Armed Forces conducted their own unique refurbishments such as adding armor spikes to the knee armor blocks, in anticipation of dense, close quarters dogfighting with the BETA.

When deployed, the F-5F had the advantage over the F-4 Phantom in cost effectiveness, but its rate of losses in close quarters combat was still high.

This was due to the accumulation of negative factors such as the capabilities of the 1st generation crafts, the lack of established anti-BETA tactics, and the lack of skilled Surface Pilots.

Though high losses in close quarters combat was a globally shared problem and was not unique to France, these losses were enough to alarm the French government. This spread the idea that close quarters combat with the BETA should be avoided at all costs.

Impatient with the front line's continual retreat and the inferiority of their crafts against the BETA, the French government decided to adopt a doctrine akin to the US Military's.

They ordered Dass Ault to develop a craft with higher survivability and 2nd generation specifications, which would avoid dogfighting, and instead focus on close-to-mid range mobile bombardments.

With cooperation from Northrock, they began developing their refurbishment of the F-5F Mirage III.

Although limitations of the Mirage 2000's fundamental design stopped it from reaching 2nd generation specifications, its development was able to progress at a relatively steady pace. After its initial combat deployment in 1981, its deployment across the French Armed forces also went smoothly, due to its ease of manufacturing. The craft continues to serve as the main force of the French Military, even after the deployment of the Rafale in 1998.

SPECIFICATION

Model Number	Mirage 2000
Generation	1.5th
Year of Deployment	1981
Manufacturer	Dass Ault
Jump Unit Engine	S53-P2

Tactical Surface Attackers

IJN
Type 81 TSA Wadatsumi
[Mitsuhishi, Kawazaki]

The Wadatsumi is an IJF specification of the A-6 Intruder, a TSA developed by the US for the Marine Corps.

As part of its license import, its suppressive ability when landing was increased in exchange for its underwater movement range, by replacing the quadruple 36mm autocannons on each arm with a sextuple version.



SPECIFICATION

Model Number	TSA-Type81
Generation	1st
Year of Deployment	1981
Manufacturer	Mitsuhishi, Kawazaki
Jump Unit Engine	Mk45 Heavy Weight Water-Jet System
Height	25.0m(variable)

US Marine Corps

A-6 Intruder

[Grunnan]

The A-6 Intruder is an amphibious TSA that commenced combat deployment in 1977.

It has a variable transformation mechanism for land and sea, and was developed to perform landing operations, which involve assault landings from the ocean onto BETA-controlled territory, and beachhead-securing operations.

Its multi-purpose armament storage modules, supported by the shoulder sub-arms, are able to be swapped out. This gives it the flexibility to adapt to its mission by mounting equipment such as reconnaissance-use, multi-purpose pods.

The craft was equipped with many fixed armaments such two 120mm smoothbore cannons, eight 36mm autocannons, and two spiked manipulators for close quarters combat. These fixed armaments, as well as the variable transformation mechanism, and the water jet propulsion system, are all stored within the airframe. This results in its large size, with a height of over 25m.

Unlike TSFs, it does not have a jump unit, and is instead limited to short distance jumps by using a rocket motor. It mainly conducts long-range operations underwater in conjunction with Swordfish-class support submarines.

After the submarine unit breaks away from the A-6 Intruder, it acts as an artillery battery that takes on landing support bombardment for the A-6, which reaches speeds of up to 20 knots while underwater.

Starting with the US Marine Corps, it has been adopted by countries on the frontlines, such as the Empire of Japan, the UK, and Taiwan.

SPECIFICATION

Model Number	A-6
Generation	1st
Year of Deployment	1977
Manufacturer	Grunnan
Jump Unit Engine	Mk45 Heavy Weight Water-Jet System

French Army

Mirage 2000 **Kai**

[Dass Ault]

The refurbished model of the Mirage 2000, currently being developed by Dass Ault, in collaboration with the African Union Force.

Its upgrades are being conducted as part of Project Prominence, an advanced TSF development program led by the UN, in response to the requests from North African countries, which possess many of these craft.

It focuses on high speed, mobile bombardment through surfacing, and it has aimed for higher close quarters combat abilities.

In the comparative evaluation exercises of the program, it has demonstrated straight-line acceleration abilities surpassing those of the UFC's Jian-10.

SPECIFICATION	
Model Number	Mirage 2000 Kai
Generation	2.5th
Year of Deployment	Prototype
Manufacturer	Dass Ault
Jump Unit Engine	FE404-GE-400

Swedish Army

JA-37 **Viggen**

[SAAG]

A 2nd-generation TSF that commenced deployment to the Swedish Armed Forces in 1986.

Much like the J-35 Draken, it focuses on its NOE (Nap of the earth) abilities.

Although its specifications have been highly regarded in Sweden, it is not operated elsewhere since, like the J-35, it is a unique TSF specialized for the country's terrain.

In Swedish, 'Viggen' means 'Thunderbolt'.

SPECIFICATION	
Model Number	JA-37
Generation	2nd
Year of Deployment	1986
Manufacturer	SAAG
Jump Unit Engine	FE85-GE-21

Swedish Army

JAS-39 **Gripen**

[SAAG]

The JAS-39 Gripen is a 3rd generation TSF developed by Swedish manufacturer SAAG. It commenced combat deployment in 1996.

TSF development in Sweden started with the production of the J-35 Draken, their refurbishment of the US F-5 Freedom Fighter, as many other European countries had done. However, Swedish TSF development achieved a somewhat different outcome to standard European developments.

Without ample funds or national strength, Sweden had realistic goals for their independent development of a third generation craft. They simply opted for a lightweight TSF that focused on cost performance and reliability.

Compared to the generally flat terrain of continental Europe, Scandinavia is mountainous, allowing for its terrain to be used as a countermeasure against Laser class BETA. Therefore, Sweden focuses on attitude control to precisely conduct creeping flight in mountainous areas, with improvements to their terrain-following radars to assist this flight.

In its offensive capabilities, it is designed to operate in heavy metal cloud environments with the loss of combat zone data links. It directly captures its targets with sensors including optical types (the sensor mast alone is exposed from the ridge line of the mountain). It also focuses on having a multi-role response ability by being able to fire over ridge lines, and having a 'look-down/-shoot-down' ability where it reveals itself to conduct accurate downwards fire.

The nickname 'Gripen' is Swedish for the mythological creature, the 'Griffin', and the name was given to reflect its appearance of fighting freely in the air and on the ground.

SPECIFICATION	
Model Number	JAS-39
Generation	3rd
Year of Deployment	1996
Manufacturer	SAAG
Jump Unit Engine	FE404-GE-400

Swedish Army

J-35 **Draken**

[SAAG/Dass Ault]

Swedish manufacturer SAAG's licensed production of the F-5F Mirage III.
It is sometimes referred to as the F-5S. Its nickname was given to it by an Air Force pilot who had transferred to a role as a Surface Pilot and suggested that it should inherit the name of the Draken fighter jet.

SPECIFICATION	
Model Number	J-35/JA-35
Generation	1st
Year of Deployment	1976
Manufacturer	SAAG, Dass Ault
Jump Unit Engine	FE85-GE-15

United States

A-10 **Thunderbolt II**

[Firechild]

The A-10 Thunderbolt II is a TSA developed by American manufacturer Firechild. It was formally adopted as the 2nd 'TSA' following the A-6 Intruder, but it is classified as a TSF in terms of its structure, specifications, and method of operation.

The A-6 Intruder was an environment-specific craft that was developed to secure bridgeheads in landing operations. It was expected to have the ability to stop the slow, yet deadly pressure of the Tank class for an extended period of time, following the invasion waves of the Destroyer and Grappler classes, all of which were threats during close quarters combat with BETA.

In 1976, the A-6 proved that it had more than adequately met its required specifications during a series of combat tests in Eurasia, using its trial mass production craft.

Praising its specifications, the US Army determined that they required a craft with the same kind of stopping power while also being able to operate on land. They launched the A-X Program, which sought submissions for prototype drafts from mainline armament manufacturers in the US.

The companies that responded all looked into ways to appropriate or improve the A-6 Intruder for combat on land, but these plans would lead to immediate failure.

Initially, the A-6 was seemed geared towards for base defense, since it sacrificed its mobility for defenses, force projection, and ammunition capacity. Therefore, seeking additional mobility on land where buoyancy could not support it, and adding three dimensional movement through a jump unit were significant contradictions against its the original development concept.

Deploying a craft with low mobility and maneuverability to combat on land, without the ocean as an emergency escape route, was essentially 'feeding the BETA', and the plans to refurbish the A-6 Intruder were shelved for good.

These manufacturers proposed alternatives through ideas such as a completely new design, or by making a strengthened F-4 Phantom variant. They agonized over the resulting lengthy development and their inability to match the required specifications, but a proposal by Firechild appeared different to the rest.

They directly appropriated the basic structure and frame of the A-6 Intruder, which other manufacturers had abandoned, and were trying to create a completely different craft by redesigning the control systems as well as the placement of joint structures and carbonic actuators.

Although it had been slightly improved, the low mobility of a large craft, which could even be called a heavy TSF, was naturally pointed out as being problematic.

However, Firechild responded to the problem by limiting the new craft's role as part of combined arms, alongside TSF vanguard forces consisting of crafts such as the F-4 Phantom. It was also to be specialized for medium range support and the suppression and elimination of Grappler and Tank class BETA. Furthermore, it would adopt an explosive spike mechanism, the 'Javelin', to counteract Tank classes that would latch on.

This defensive weapon could significantly improve the survivability of the craft, so long as the burster pellets in it could last long enough. However, the Javelin also significantly increased the craft's overall weight, so it was not adopted on future crafts, but was extremely suited to this craft, which did not seek mobility.

Finally, this craft could also immediately share the production line with the A-6 Intruder, allowing for a significantly reduced development budget and time to combat deployment. These were touted as its greatest merits.

The US Army bestowed the 'comparatively decent' Firechild proposal with a budget, and hurried them to finish a prototype craft.

Day in and day out, the craft's development continued, and even though they were ahead of schedule, they still faced the problem of a lack of output with the main engine in the jump unit.

This was a serious obstacle in the program, and it resulted in a dismal first impression during operational trials, due to flaws such as its 340 second limit on continuous flight, and the restriction of firing the GAU-8 forwards during flight, to avoid stalling.

These problems were resolved when a strengthened main engine was developed. In 1978, the US Army formally adopted it as the A-10, and gave it the nickname 'Thunderbolt II'.

The A-10 Thunderbolt II had pushed the concepts of first generation crafts, for heavy fire power and armor, to the limits. Even so, its promised ease of manufacturing was no lie, and in a short period of time it was ready for operation by several forces. Its supply was prioritized to the European NATO forces, which were facing worsening battle conditions at the time.

As expected, its low mobility were panned by frontline Surface Pilots. However, its high survivability in dense close quarters combat, and its firepower, outperforming a flight of F-4 Phantoms, were well received by both the East and West German armies, which had taken on city defenses. When the craft's operational strategies became entrenched, it gained an overwhelming amount of trust, earning nicknames such as 'Kanonenvogel' and 'Tank Killer'.

Even after its procurement by the US Armed Forces ended in 2000, production of the craft continued. The C type raises its specifications to 2nd generation levels through weight reductions in armor, refitting of avionics, and the addition of OBW. This variant is being used by the European Union and the Middle Eastern Coalition.

SPECIFICATION	
Model Number	A-10
Generation	1st
Year of Deployment	1978
Manufacturer	Firechild
Jump Unit Engine	FE79-GE-9A

US Marine Corps

A-12 **Avenger**

[McDaell Doglam, General Dynomics]

The A-12 Avenger is a 3rd-generation TSA that commenced combat deployment in 1999 with the US Marine Corps.

McDaell Doglam and General Dynomics had collaboratively developed the A-12, but later, the former company would be absorbed by Boening, while the latter sold off its development department to Lockweed Mardin. After absorbing McDaell Doglam, Boening then announced their withdrawal from the A-12 project, leaving Lockweed Mardin solely responsible for the craft's manufacturing and maintenance.

It sought to surpass the A-6 Intruder in suppressive abilities, resulting in it becoming more heavily armed. It is equipped with four multi-purpose armament storage modules, each of which can be mounted with a replaceable 120mm smoothbore cannon. Its fixed armaments include twin linked 36mm autocannons and 12.7mm heavy machine guns on each upper arm, as well as spiked manipulators for close quarters combat.

There are many variations on the multi-purpose armament storage module, such as multi-purpose missile launchers or larger caliber autocannons.

The most prominent feature of this craft is that its design incorporates anti-human combat concepts, much like the F-22 Raptor.

It also has a unique airframe shape, and it adopts a myriad of anti-detection technology (stealth). This allows its detection rate to be kept to a minimum against radars and sensors.

The same kinds of stealth abilities were added to the submarine unit, which has been enlarged and given a newly developed magnetic water propulsion system, a thorough rectifying system, and a nuclear engine. These allow for silent and extended cruising without needing to resupply.

The conversion to a nuclear-powered engine was done to provide power to a railgun, which would have been used for landing support, but due to a delay in its development, a 76mm rapid-fire cannon was provisionally adopted.

Additionally, it is equipped with a 12-linked vertical launch missile system.

Its procurement price rose after the absorption and merging of the developers, as well as the adoption of a complex variable transformation mechanism and advanced technology. As a result, its deployment schedule was significantly delayed.

SPECIFICATION	
Model Number	A-12
Generation	3rd
Year of Deployment	1999
Manufacturer	McDaell Doglam, General Dynomics
Jump Unit Engine	FE412-GE-400

European Union
EF-2000 Typhoon
[Euro Fightas]

The 3rd generation, mainline TSF of the European Union.

In 1978, with the failure of Operation Palaiologos, the BETA's westwards advance into Europe became certain. NATO member states including the UK, West Germany, and France agreed to collaboratively develop a new TSF that would succeed their mainline TSFs, which at the time, were F-4 Phantom and F-5 Freedom Fighter license productions, such as the Tornado and Mirage. In 1980, development commenced under the ECSTF (European Combat Tactical Surface Fighter) Program.

The ECTSF Program promised a rapid bolstering of the front line, and sought completion by 1985. Their focus was on the lessons from Operation Palaiologos. What would be needed was the ability to conduct a long distance invasion to reach a hive, as well as increases in mobility and maneuverability in order to dodge laser attacks and increase capabilities in dense and close quarters dogfighting within hive interiors. Coincidentally, these specifications mirrored those of the F-15 Eagle, which was being developed at the same time.

If it had been completed under the initial schedule and with those specifications, the ECTSF would likely have been a high specification, 2nd generation craft that would have been on par with the F-15 Eagle. However, with Europe overrun by BETA, and from France, one of the key members, withdrawing due to their disapproval of the main engine, development suffered significant delays.

The countries involved enviously watched the success of the F-15 Eagle, and as many began to question the purpose of the ECTSF Program itself, West Germany showed signs of withdrawing.

While marketing of the F-15 Eagle by the US was gaining momentum, as if taking advantage of the situation, the UK had essentially been left as the sole developing country after the European continent had fallen. They decided on an overhaul of the project, to bring it up to 3rd generation standards with even stronger mobile, close quarters dogfighting abilities. In 1994, they built the prototype demonstrator craft, the ESFP (Experimental Surface Fighter Program), to trial the technology. Meanwhile, this limited imports of the F-15 Eagle, which had been based on their old specifications and design concepts, and convinced many countries to remain in the project, by demonstrating the ESFP's high combat capabilities.

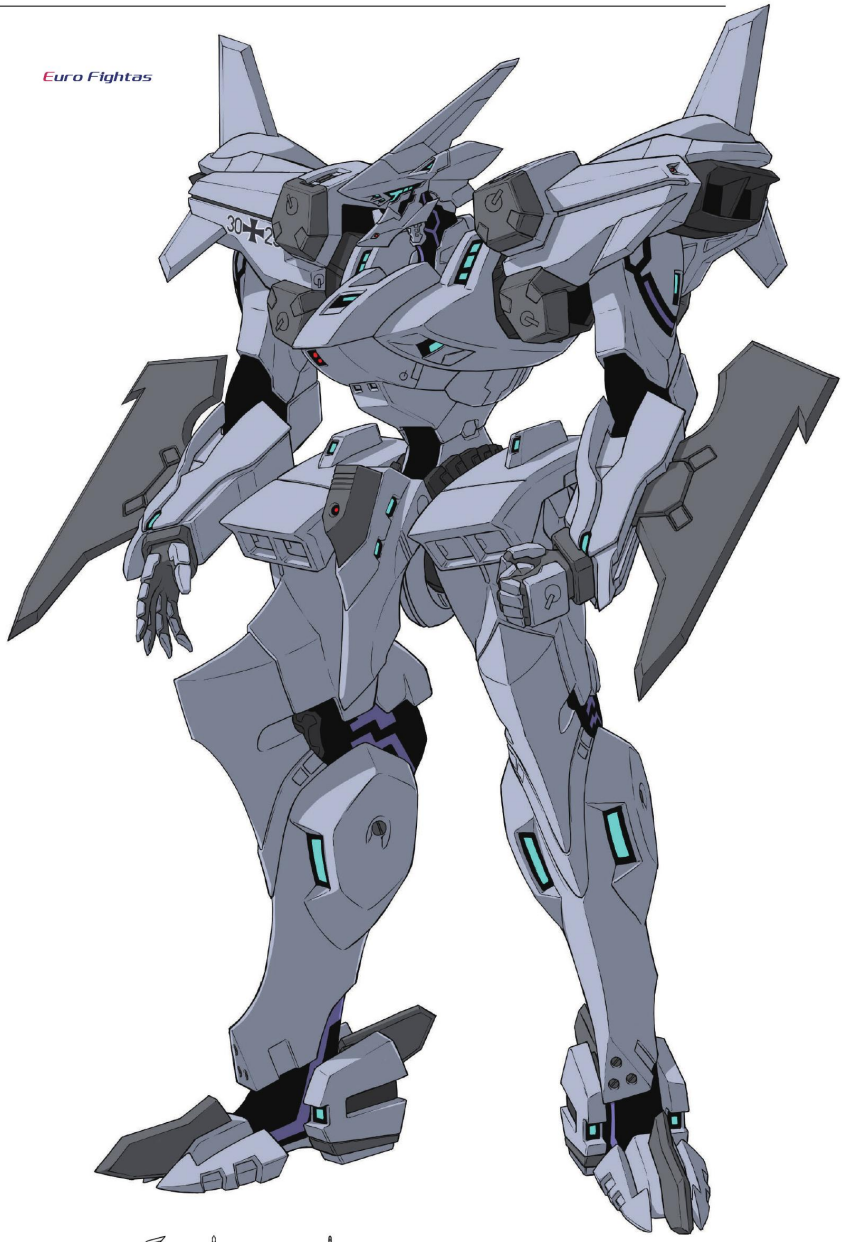
Development then progressed smoothly, and in 1998, the advance mass production model, the EF-2000 (export name 'Typhoon') was given to trial groups. As of May, 2000, it started to be distributed to combat forces.

It is said that the 3rd generation technologies used on the ESFP's trial craft were established with assistance from Imperial Japan, which has a focus on hive capturing and close quarters dogfighting, much like the European nations. However, this has not been confirmed.

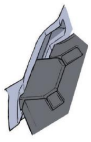
Hyper carbon blades, a fixed armament, are equipped on the head, the outer forearms, the shoulder blocks, from the knee block to the lower leg, and from the tip of the feet to the heels.

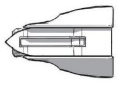
The head, shoulders, and both forearms in particular act as support devices for aerodynamic craft control, as well as for close quarters attacks.

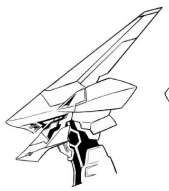
Much like crafts from the Soviet Union, with their vast plains and many hives, the EF-2000 Typhoon was designed with not only hive capturing in mind, but also dense, close quarters dogfighting.

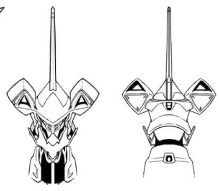


SPECIFICATION	
Model Number	EF-2000
Generation	3rd
Year of Deployment	2000
Manufacturer	Euro Fightas
Jump Unit Engine	AJ200
Height	19.6m

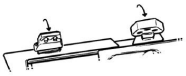

The arm's blades move along the rail.


Arm Side (blade not shown)



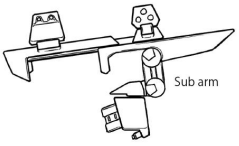

Head, from 4 views

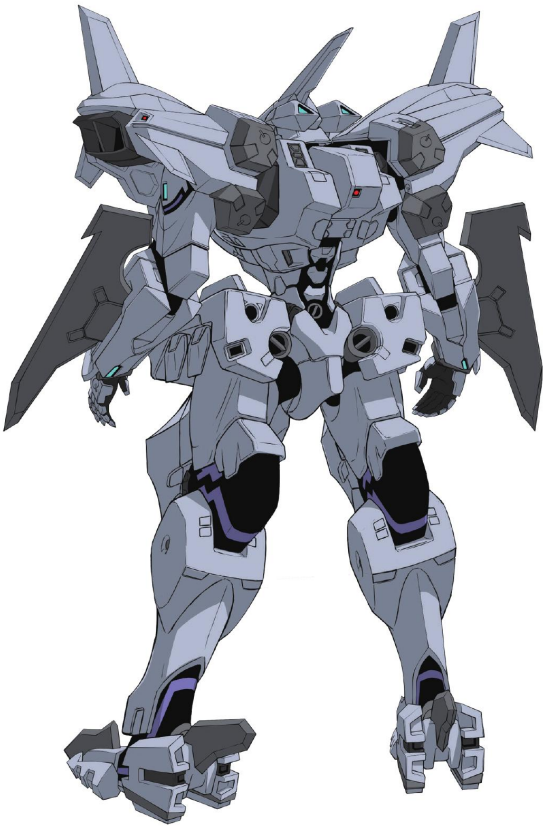

Upper shoulder block depressions

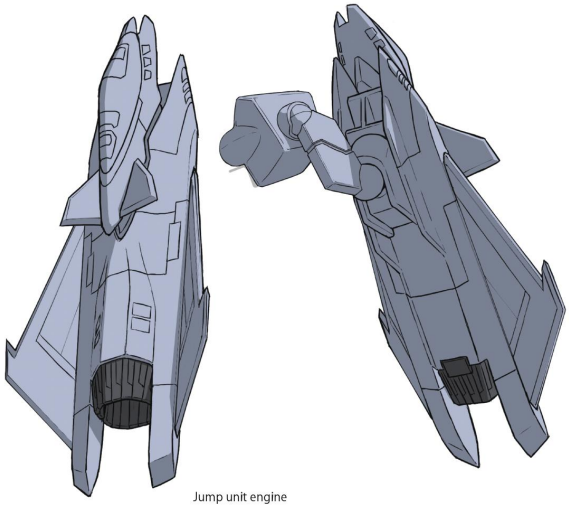




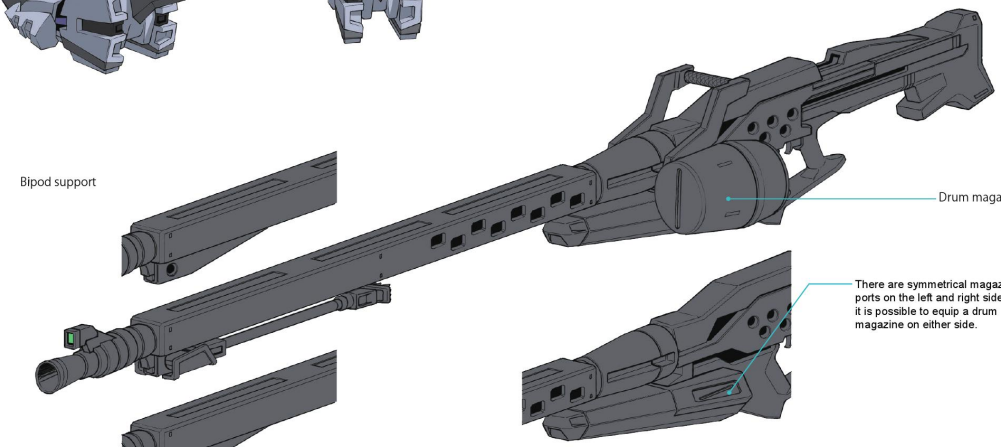

The protruding form of upper waist block


Sub arm





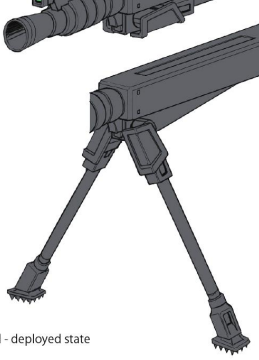
Jump unit engine



Bipod support

Drum magazine

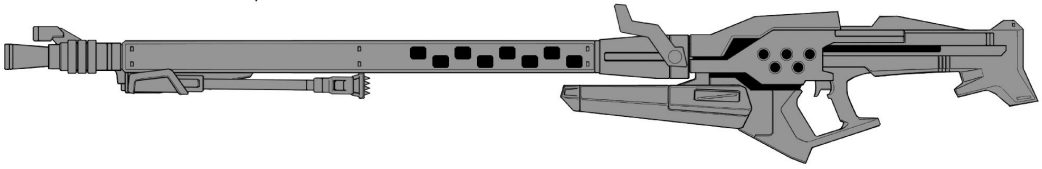
There are symmetrical magazine ports on the left and right side, so it is possible to equip a drum magazine on either side.



Bipod - deployed state

MK57 Squadron Support Cannon

A heavy support firearm developed to support TSF forces that rush into group of BETAs when invading inland areas.



TSF Weapons

A defining characteristic of TSFs is their ability to wield a variety of weapons, due to having a greater range of movements and more dexterity than humans. This section will introduce several of these TSF-exclusive weapons.

Close Quarters Dogfighting Weapons

IJF

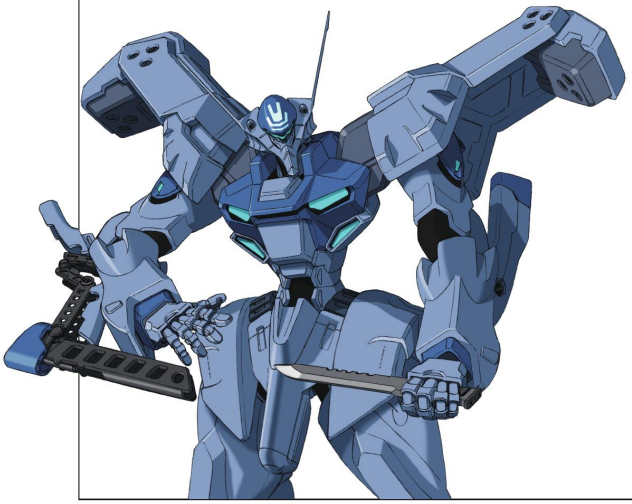
Type 65 PB Knife



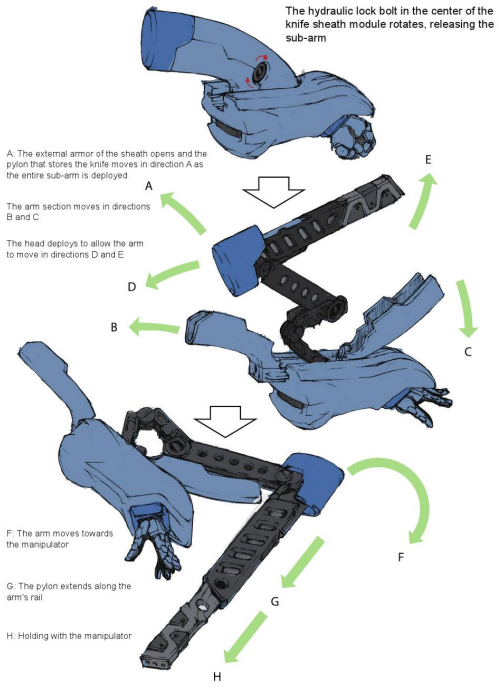
A close quarters (or 'PB'; Proximity Battle) knife that has been used as a standard weapon for IJF TSFs, starting with the Shiranui.

It is normally stored in the 'knife sheath' module, placed on the outer forearm, and can be equipped by a sub-arm, which deploys in about a second.

The sub-arm's angle of deployment is extremely wide, and it is possible to equip the knife on either the left or right manipulators.



Shiranui | Knife Sheath Deployment Diagram



US Armed Forces

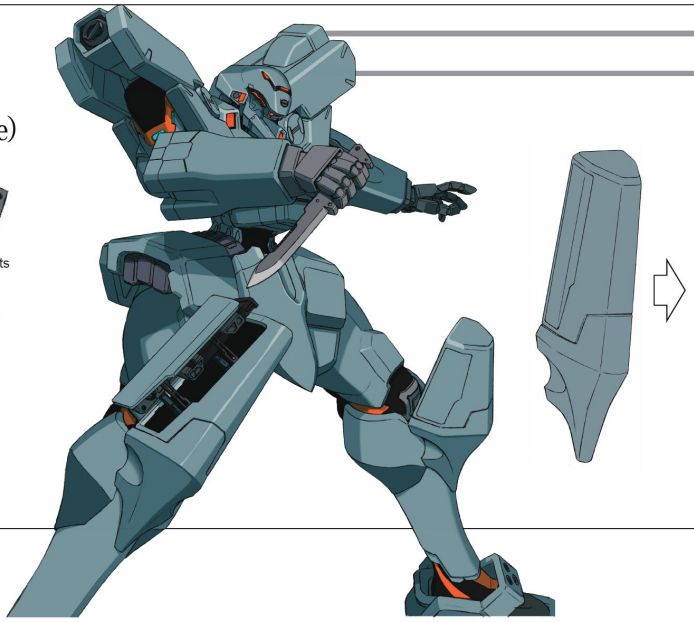
CIWS-1A
(Close In Weapon System-1 A-type)



The armament storage module for the F-15 series is equipped on its knees. The standard method of equipping the knife is to use an automated equipping system with the manipulator.

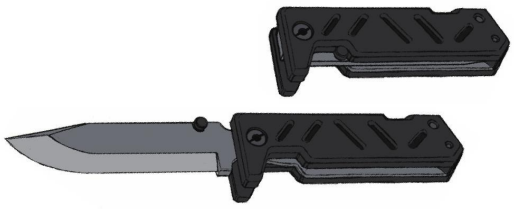
Although it loses to the sub-arm in terms of time taken to equip the knife, it wins in its maintainability and reliability due to the lower number of components needed, and the simplified structure.

Furthermore, the storage module can also store spare parts like various types of ammunition for assault cannons.



US Armed Forces

CIWS-1B
(Close In Weapon System-1 B-type)

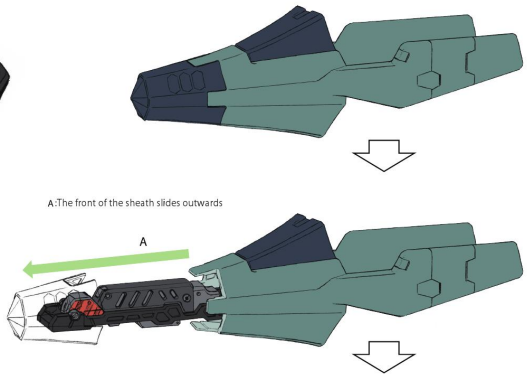


The short blade developed specifically for the F-22 Raptor takes the form of a folding knife. Because the knife springs out when deployed, it can be equipped quickly with the manipulator.

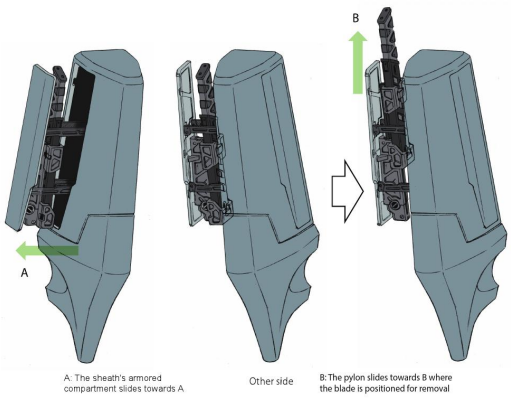
Although it has inferior toughness compared to a fixed blade, it was developed with saving storage space as a priority, since it was assumed that the F-22 would only very rarely engage in close quarters combat with a blade.



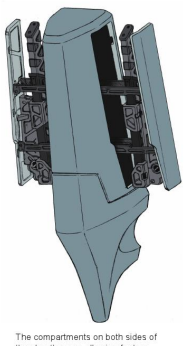
F-22A Raptor | Knife Sheath Deployment Diagram



F-15E | Deployment of the Knife Sheath

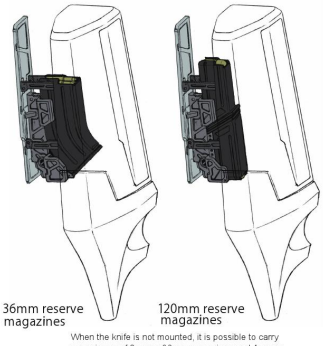


Full open state



The compartments on both sides of the sheath open, allowing for two short blades to be equipped at once.

Carrying reserve magazines

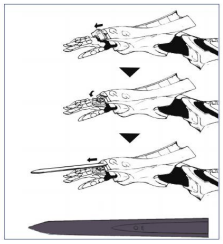


When the knife is not mounted, it is possible to carry a maximum of 2 spare 36mm magazines and 4 spare 120mm magazines.

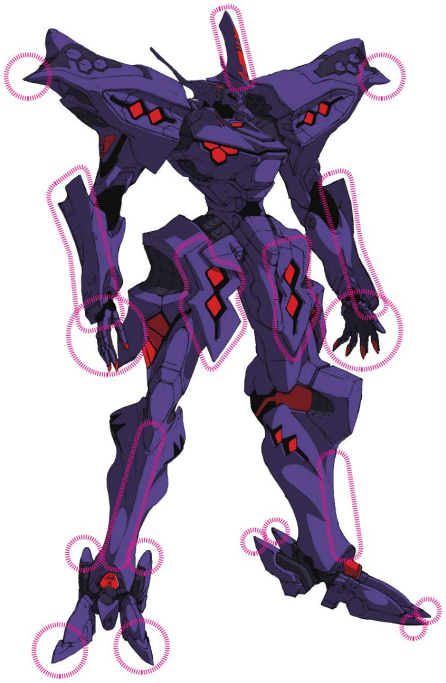
IJF

Type 00 Close Quarters Combat Dagger

After the introduction of the F-4 Phantom, the development on peripheral equipment was conducted in Japan based on the country's own unique operational concepts, while adhering to the US mantra of 'versatility of armaments through manipulators'.
However, the Shogunate focused more on the high survival rates of craft in the EU and Soviet forces in dense, close quarters combat, which resulted from these nations adopting fixed support armament such as armor spikes, motor blades, and blade edge armor.
By analyzing combat data, it became clear that fixed armaments, which didn't occupy the manipulators, were also effective. They were then adopted onto the Takemikazuchi during development.
The Type 00 Close Quarters Combat Dagger was developed based on this premise.





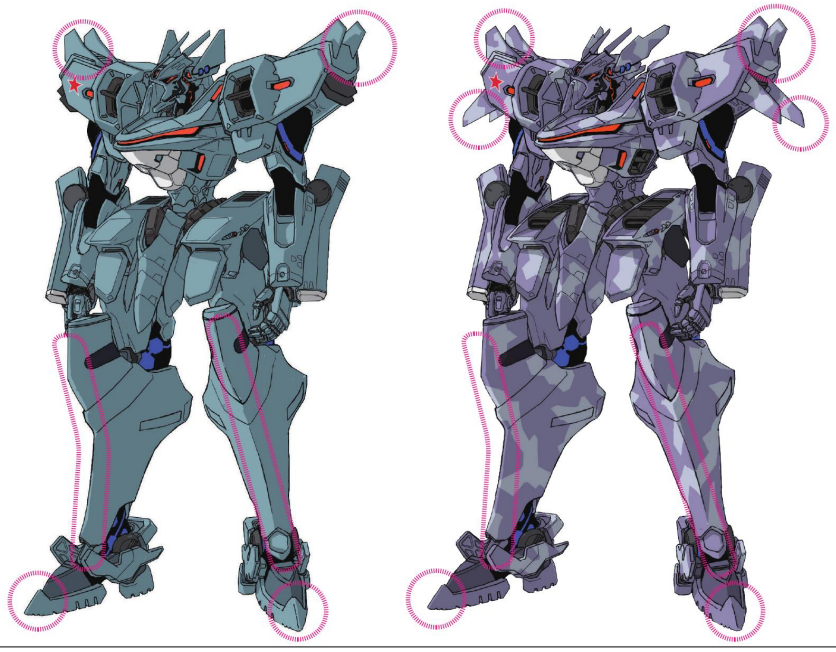


The Takemikazuchi Type 00R's Super Carbon Blade Edge Armor

Following in the footsteps of the Su-27/37, which excelled in dense, close quarters dogfighting, the Takemikazuchi is equipped with super carbon blade edges across its airframe.
These are mainly equipped on the large sensor mast on the front of the head, the edges of its shoulder blocks, forearms, the mobile armor on the front of its waist, its shins, feet (2x2), heels (2x2), and fingertips (5x2).
With a higher ratio of blade edges to armor than either the Su-27 or 37, the Takemikazuchi was set to become the ultimate close quarters TSF. However, additional costs were incurred in its manufacturing and operation, due to its the excessive use of super carbon, as well as needing a new airframe structure and new materials with higher shock resistance. These factors also lowered its maintainability.

The Su-27 and Su-37's Super Carbon Close Quarters Combat Armament

The Su-27's blade edge armor is located on the front of its knee block armor, its shins, and on the tips of its feet. Additionally, there are two more fixed armaments on each of its shoulder armor blocks, for a total of four blade vanes. Once the effectiveness of these were proven in combat, the Su-37, an upgrade of the Su-27, was given four more blade vanes on its shoulder armor blocks, for a total of eight.



Soviet Armed Forces

Close Quarters Combat Armament System



Commonly called the 'Motor Blade', this close quarters armament system has become standard equipment on Soviet-made TSFs, starting with the Su-27. As modules, they are equipped on the craft's outer forearm, deployed with a guide arm extending forwards, and they cut through the target with a serrated chain belt that rapidly rotates. Maintenance is conducted by replacing the entire module, which can be forcefully discharged.

Close Quarters Dogfighting Weapons

IJF

Type 74 PB Blade

A close quarters combat melee blade, made of super carbon, that has been formally adopted by the IJF.

The curving of its hilt towards the blade makes it suited to downward swings. A strike from above is even capable of cutting through the tough outer shell of the Destroyer or the Fort class.

The weapon was ordered from the US, where it is called the CIWS-2A, as specialized equipment for the F-4 Phantoms imported to the Empire of Japan. However, with the deterioration of the European Front, distribution priority of the F-4 to Japan was lowered, and only the armaments were delivered to Japan in 1974.

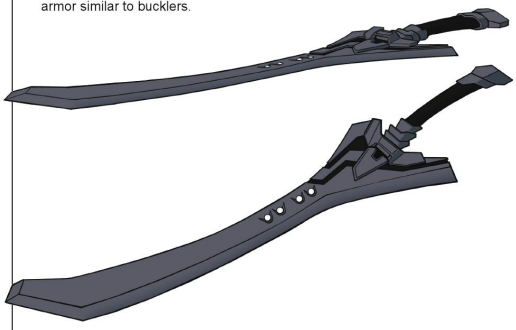


Third United Front

Type 77 Close Range Melee Blade

The tip of the weapon is widened, making it top-heavy. While the Type 74 is used as a slashing weapon, this weapon's weight makes it an effective hacking tool. Though this places additional strain on the manipulator, it increases the melee damage.

Furthermore, craft from the TUF are known to use supplemental armor similar to bucklers.



US Armed Forces

XCIWS-2B
(X Close In Weapon System-2B)

A melee blade that is the standard equipment for the YF-23.
It was manufactured using the techniques of the CIWS-2A (the Type 74 PB Blade). However, since the YF-23 was not selected for the ATSF program, the XCIWS-2B was never formally adopted.



EU Army

BWS-8 Flugelberte

A melee blade resembling a halberd that has been adopted by the West German Army. The blade itself is limited to the weapon's tip, but given its top heavy form and long handle, attacks using centrifugal force can generate the highest power of all other close quarters combat weapons. It is called the 'Flugelberte' by the German Army.

Multi-Purpose Supplemental Armor

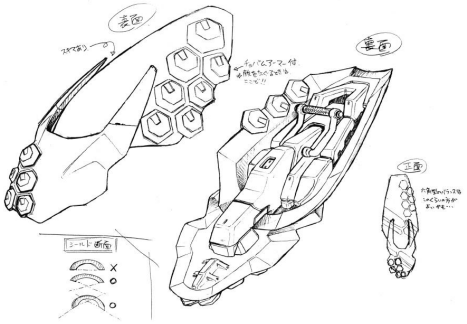
UF

Type 92 Multi-Purpose Supplemental Armor

A shield that is held by a manipulator.
It is made of a heat-resistant composite armor, and it is coated with an anti-laser vaporization film.
TSFs normally evade attacks by utilizing their high maneuverability, so these are used in situations where it is impossible to perform adequate evasive maneuvers, such as in a dense battle, or when conducting suppressive support with multi-purpose guided missile systems, which limit maneuverability.
It is possible to use the shield itself as a melee weapon or as a dozer blade for construction work, by folding out the lower section of the shield to a right angle.

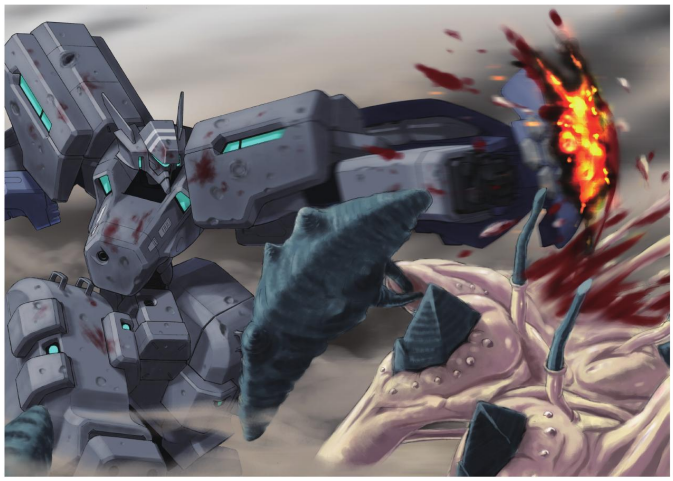






Reactive Armor as a Melee Weapon

Hexagonal shaped charges are mounted on the surface of the shield. They are effective at eliminating Tank-class BETA making contact. Additionally, they can also be made to detonate when striking enemies to effectively deal damage.
However, with the limited number of charges, and the fact that the supplemental armor itself is damaged when used this way, these should only be used with the assumption that the shield will be destroyed.



US Armed Forces

AMWS-21(Advanced Multiple Weapon System-21)

The AMWS is the main weapon of US TSFs, consisting of a 36mm autocannon and a 120mm smoothbore cannon.

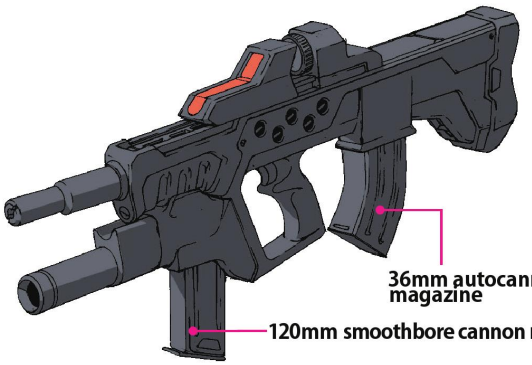
It also includes a laser targeting device, which estimates the distance to the firing target and transmits information to the FCS (Fire Control System). The 120mm smoothbore cannon is detachable, allowing it to be replaced with different modules depending on the mission.

The cannon itself adopts the principles of other recoilless rifles by limiting the initial firing velocity. However, by using rocket propelled shells, it can secure greater range and velocity.

Its firing range exceeds 3000m, but accuracy and armor penetration ability gradually decrease closer to this range.

Since both the 36mm and 120mm are caseless rounds, where the cartridge is made of the propellant itself, there is no ejection when firing. These rounds are the international standard, and so long as the magazine shape matches, they can be used regardless of the model of cannon.



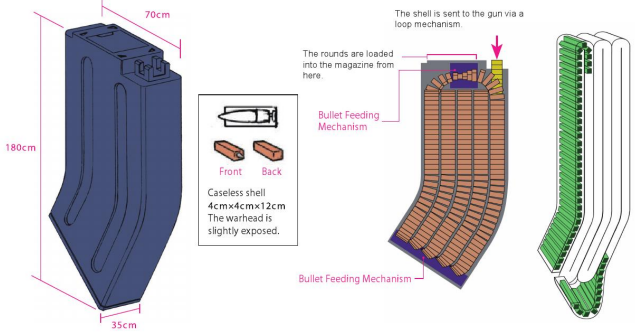


36mm Autocannon Spare Magazine

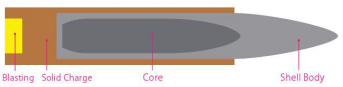
A magazine for autocannons, loaded with 36mm armor piercing rounds. Depleted uranium is used for the armor piercing round's core. A bullpup design is used, with the chamber located behind the cannon's grip, and the magazine is loaded into the upper barrel.

2000 rounds are loaded per magazine.

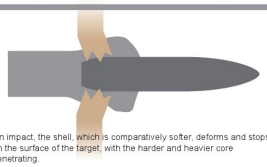
An additional loading mechanism is mounted in the magazine itself to prevent problems with bullet feeding. Using power supplied from the assault cannon itself, belts on the upper and lower parts send out the bandolier.



36mm Round Depleted Uranium Core (HVAP) | HVAP:High Velocity Armor Piercing



The solid charge acts as a combustible cartridge case, which burns away when firing. As a result, there is no ejection of cases.



On impact, the shell, which is comparatively softer, deforms and stops on the surface of the target, with the harder and heavier core penetrating.

The standard shell that is used with 36mm weapons.
In order to increase the initial velocity, depleted uranium is only used in the core, since it is heavier than the shell's body, made of light metal.
On impact, only the core ejects from the shell and penetrates the target.

36mm Round Incendiary | Tracer



Rather than a core or explosives, a tracer agent is stored within the shell.

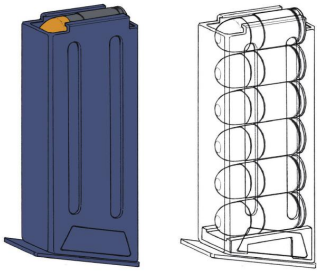


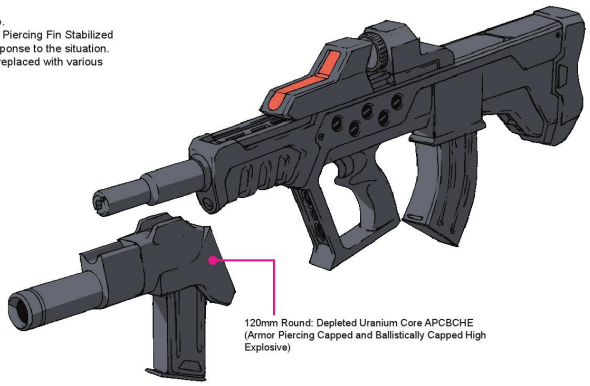
As it travels, the tracer agent burns, and when it makes contact, it creates an incendiary effect.

A tracer agent stored in the shell ignites when fired, and the shell's trajectory is made visible as it travels. It has low destructive power, but can be used to correct sights and to alert allies, including consorts and ground units, to a target of attack.

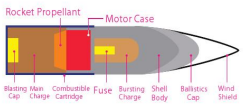
120mm Magazine

A smoothbore magazine that is attached to the front of the assault cannon's grip.
Six rounds are loaded per magazine. Additional shell types, including the Armor Piercing Fin Stabilized Discarding Sabot (APFSDS) and canister rounds (Buckshot) can be used in response to the situation.
As a module on its own, the 120mm smoothbore cannon can be detached and replaced with various options depending on the situation.





120mmRound Depleted Uranium Core (APCBCHE) | APCBCHE：Armor Piercing Capped and Ballistically Capped High Explosive



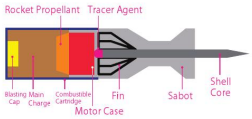
The solid fuel in the motor case ignites after firing, propelling the entire shell with rocket force.



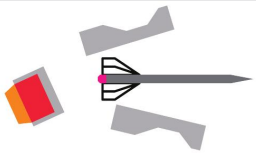
Depleted uranium, with its high weight and hardness, is used as the core.

On impact, the wind shield is crushed and the ballistics cap deforms, allowing the core to pierce armor. After penetrating, the explosives within the shell body are detonated. The wind shield reduces air resistance, and the ballistics cap is crushed before shell body to stop it from deforming or misaligning upon impact. As a rocket-propelled shell, it increases its initial velocity by igniting after firing.
Upon impact and penetration, the explosives within the shell body detonate to damage the target.

120mmRound (APFSDS) | APFSDS: Armor Piercing Fin Stabilized Discarding Sabot



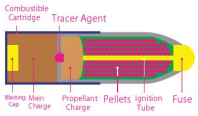
Fins are attached to the shell core, to stabilize its ballistic trajectory.



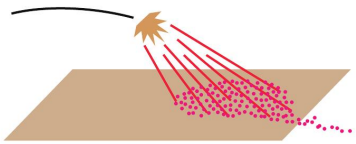
When travelling, air resistance makes the sabot fall off, and the core continues its own flight, like an arrow.

The armor piercing ability of the round is maximized by increasing the ratio between the length and diameter of the shell body. A round with an arrow-shaped core, which emphasizes penetrative power, with its long and thin body. When fired, it is initially surrounded by a sabot. However, this falls of mid-flight, leaving the core and its stabilizing fins. It has an extremely high armor piercing ability, but its destructive power after penetration is low, so it is often used on targets with hard armor.

120mmRound Canister Round (Buckshot) | Canister



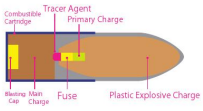
The fuse is set to explode after travelling a certain distance.



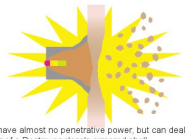
It is normally detonated mid-air to disperse pellets over a wide area.

A shell loaded with many pellets, it explodes mid-air to inflict damage over a large area. The power of individual pellets is low, but as the pellets can disperse over a wide area, it is used against densely packed groups of small BETA with low defense.

120mmRound (HESH) | HESH:High Explosive Squash Head



Since this round uses plastic explosives, a fuse, and a primary charge, and includes no heavy metals such as depleted uranium, it is possible to manufacture them at a low cost.



They have almost no penetrative power, but can deal damage to the interior of a Destroyer class's armored shell.

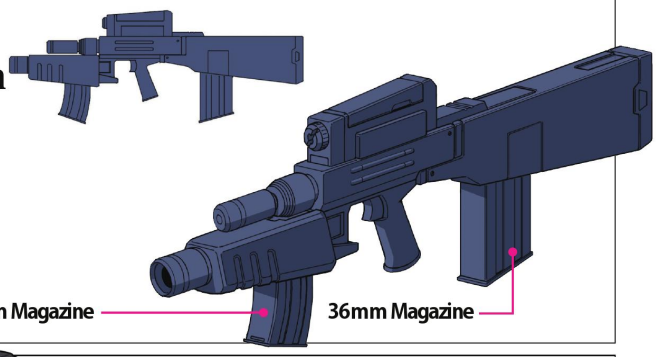
Upon impact, the shell body is crushed, and the explosive charge sticks to the target's armored surface. Following this, the fuse triggers a detonation, and due to the Hopkinson effect, the interior layer of the target's armor peels off and scatters, dealing damage. As it doesn't use kinetic energy, it is also effective against distant targets.

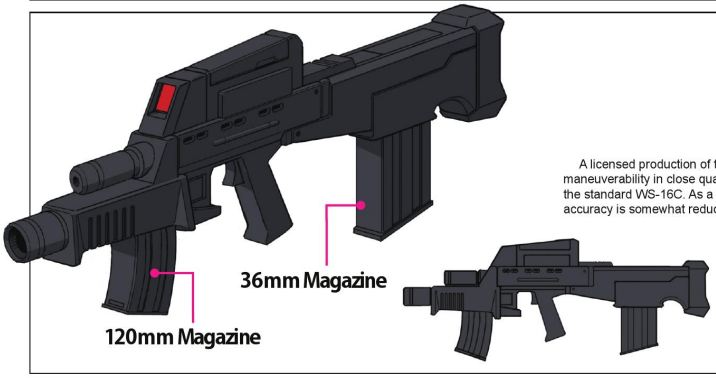
Ranged Weapons

US Armed Forces

WS-16C Assault Cannon

The standard armament that was adopted alongside the combat deployment of the world's first TSF, the F-4. The earlier model of the WS-16 had a smoothbore cannon caliber of 105mm and an autocannon caliber of 20mm, which were upgraded to the 120mm and 36mm respectively on the WS-16B, for higher damage. Minor upgrades for greater reliability brought it up to the WS-16C, and it became the mainline equipment for the 1st and 2nd generations of TSF in the US Armed Forces. Its production in the US was discontinued after the introduction of the AMWS-21 as a practical weapon, but it remains in use by certain craft of the US Armed Forces.





Third United Front

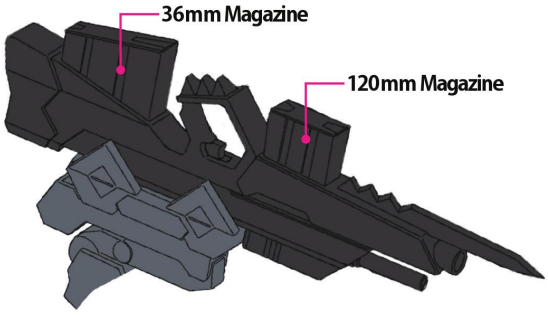
Type 82 Tactical Assault Cannon (WS-16C Kai)

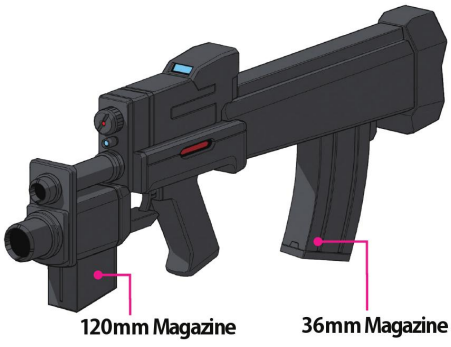
A licensed production of the WS-16C used by the Third United Front. Focusing on maneuverability in close quarters combat, the gun stock has been trimmed compared to the standard WS-16C. As a result, the balance of the barrel is worsened, and the accuracy is somewhat reduced.

US Armed Forces

XAMWS-24 Experimental Prototype Assault Cannon (X Advanced Multiple Weapon System-24)

A prototype assault cannon developed for the YF-23. Mounted with a bayonet and spikes, it is designed with considerations for close quarters dogfighting. Compared to the AMWS-21, it carries magazines of 30% and 20% more 36mm and 120mm rounds respectively.

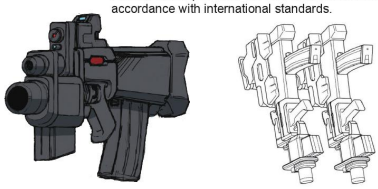




Soviet Armed Forces

A-97 Assault Cannon

An assault cannon used by the Soviet Armed Forces, developed from the WS-16. Its rounds are in accordance with international standards.

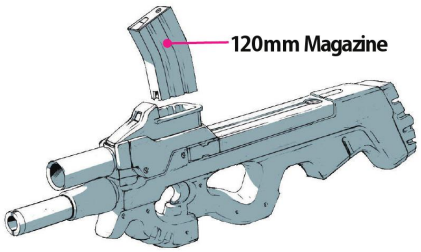


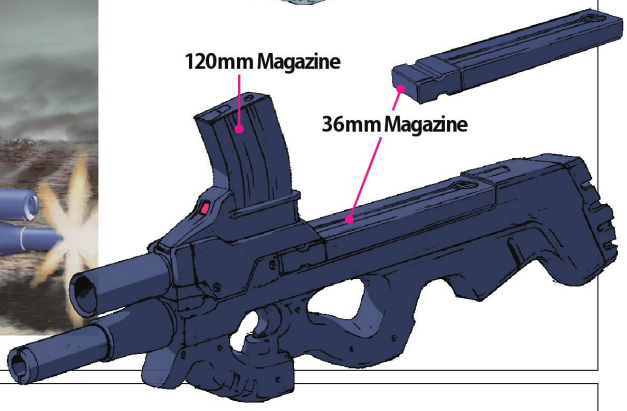
IJF

Type 87 Assault Cannon

An assault cannon adopted by the IJF. The bullet feeding method of the 36mm rounds greatly differs from standard assault cannons, since the magazine is mounted parallel to the barrel. It has an advantage in maneuverability since the magazine doesn't protrude out.





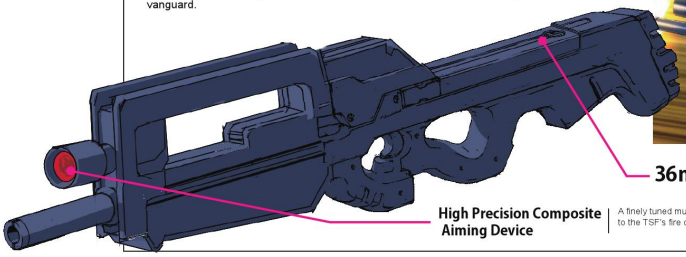


IJF

Type 87 Support Assault Cannon

An assault cannon that replaces the 120mm smoothbore cannon of the Type 87 assault cannon with a high precision scope, and extends the barrel for the 36mm autocannon.
It is capable of more precise fire than a standard assault cannon, and is mainly equipped by Rush Guard and Impact Guard craft, which are required to provide supporting fire for the vanguard.

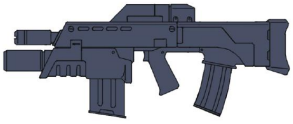


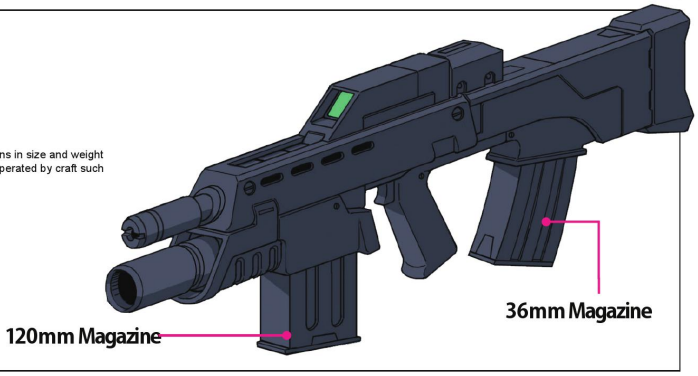


German Army

GWS-9

A German-made assault cannon that boasts more than 20% reductions in size and weight compared to previous assault cannons. It is also highly reliable, and is operated by craft such as the EF-2000 as official equipment of the EU Forces.





Armament Mount Systems

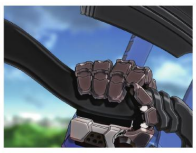
UF

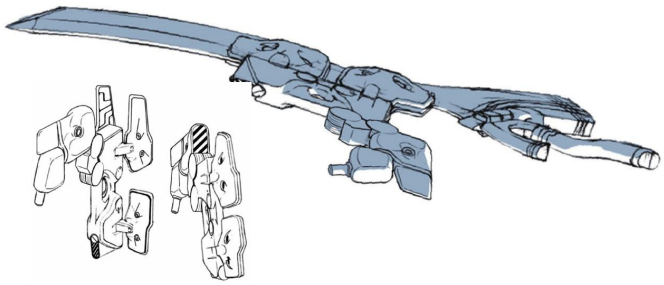
Type 74 Mount Pylon System

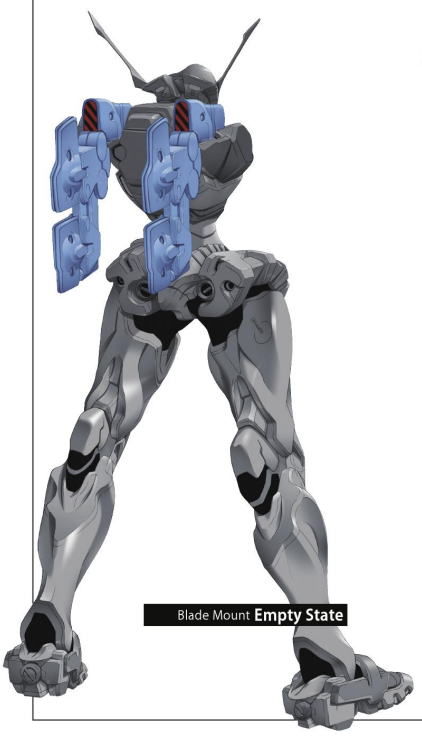
A mount pylon system designed to secure spare armaments. Imperial Japanese craft equip this Type 74 system. The mount part can be replaced to allow a variety of weapons to be loaded. The system's range of motion is extremely high, and they are sometimes considered the 'third and fourth arms' of a TSF.

Blade Mount

A mount used when mounting a melee blade with the Type 74 system. The melee blade is secured with bolts into four lips.

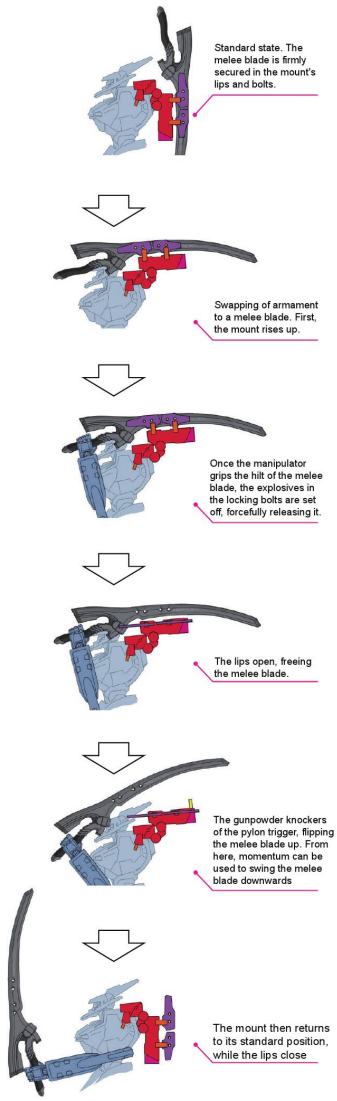





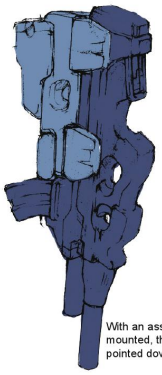


Mount Development Diagram

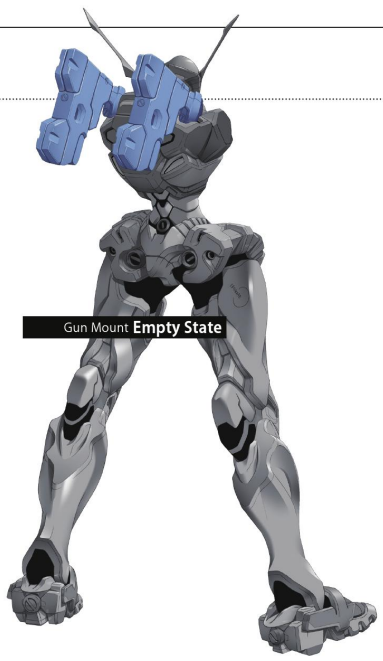


Gun Mount

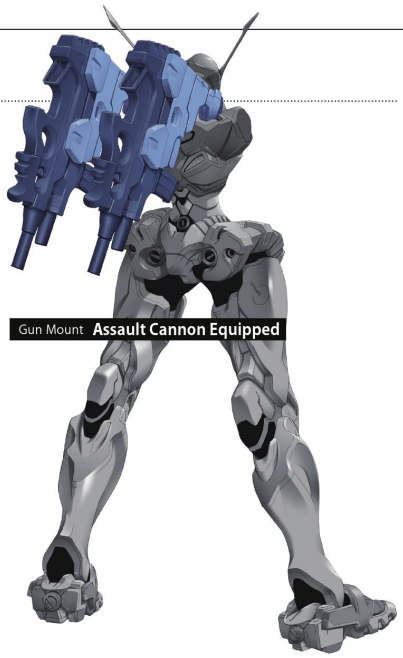
A mount used when loading an assault cannon on the Type 74 system. While the mounts give assault cannons to the TSF's manipulators, they can also autonomously operate to fire the cannons on their own.



With an assault cannon mounted, the muzzle is pointed downwards.



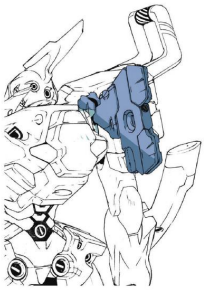
Gun Mount **Empty State**

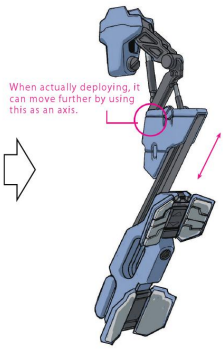


Gun Mount **Assault Cannon Equipped**

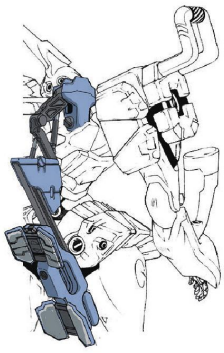
Mount Deployment Graph

The gun mount systems on Imperial Japanese craft, such as the Shiranui and the Fubuki, employ an underarm deployment method of assault cannons—the assault cannons are deployed to the manipulators via a downwards motion, under the craft's arms. In contrast, on Soviet craft such as the Su-37, cannons are deployed overhead from the back, over the shoulders. The underarm method requires a high level of control, but can be effective in tight combat, such as with Tank classes at a craft's feet, since the two main arms act as a shield to secure space for deployment. The overhead method, however, is said to excel in maintainability.





The mount is jolted up by the cylinder and rotates while the pylon holding the assault cannon slides along the rail.



Simultaneously, the assault cannon passes under the arms of the craft, then is secured by the manipulator, at which point, the lips are released. Afterwards, the pylon slides while the lips close,



Backwards Firing

It is possible to fire with the assault cannon still attached to its mount. With an assault cannon in each of the main arms, and one each in the two pylons, it is possible to fire four cannons to the front and rear.



Simultaneous Forwards/Backwards Fire

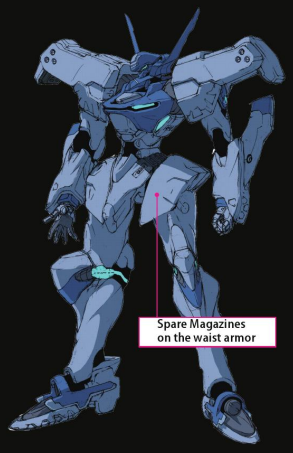
It is possible to autonomously activate the gun mount, and fire backwards and upwards. During this, targeting, aiming, and firing are all conducted autonomously.

Mount Systems

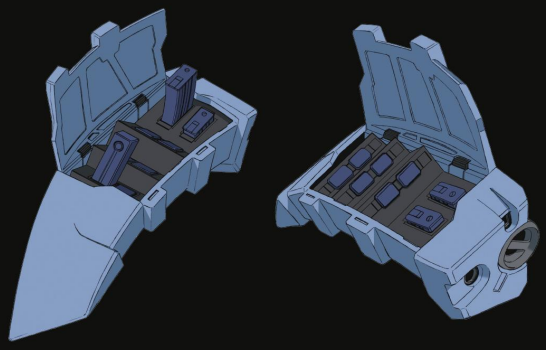
Switching Assault Cannon Magazines with an Auxiliary Arm

Although it is possible to use the main arm manipulator to switch magazines on an assault cannon, this action can also be performed with the auxiliary arm equipped on the armament mount systems, while the main arm retains use of the weapon. This minimizes the time spent in combat switching magazines. Also, when using more than two or more assault cannons, continuous fire without breaks is possible by adjusting the ammo consumption of each cannon, and synchronizing the magazine reload timings to cover for one another.

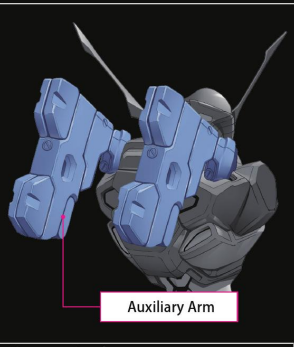
Spare Magazines on Waist Armor



The Shiranui carries reserve magazines in armored compartments on its waist. These hold 6 36mm magazines and 2 120mm magazines for the Type 87 Assault Cannon. These also act as additional waist armor. Attacks to the waist area by BETA are generally physical impacts with an extremely small risk of detonating the magazines.

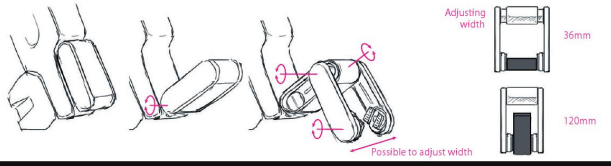


Shiranui: Switching Magazines with an Auxiliary Arm

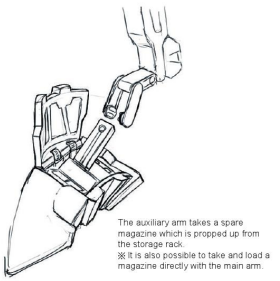


The diagrams depict how an auxiliary arm from the mount system takes a spare magazine from the waist compartment and loads it. The auxiliary arm's width stretches or shrinks to match the type of magazine. The set of movements involved in reloading are performed automatically, so there is no need for the Surface Pilot to pay particular attention to the movements.

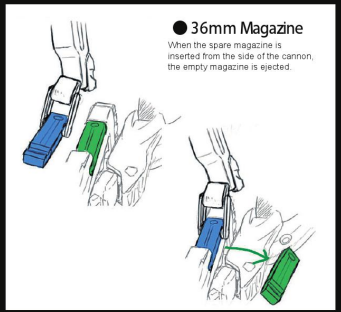
Gun Mount's Auxiliary Arm

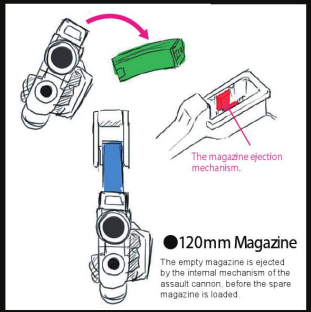


Magazine Loading



The auxiliary arm takes a spare magazine which is propped up from the storage rack.
※ It is also possible to take and load a magazine directly with the main arm.





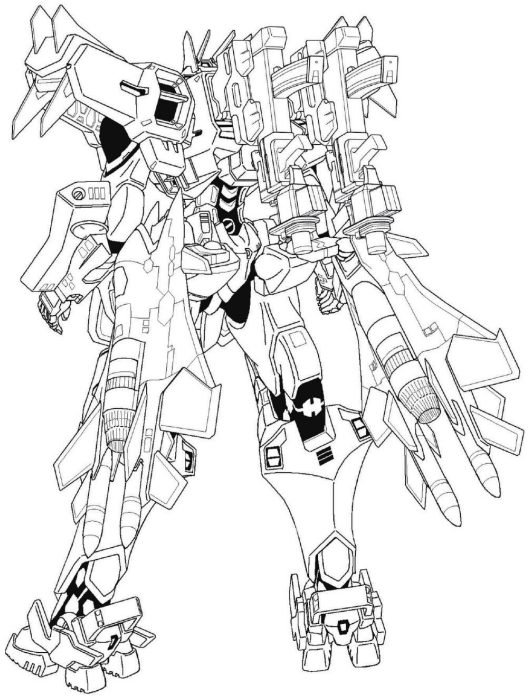
Soviet Armed Forces

Б -87 Mount Pylon System

The mount systems on the Su-27 and Su-37 employ an overhead method, passing the armament to the main arm over the shoulders of the craft.

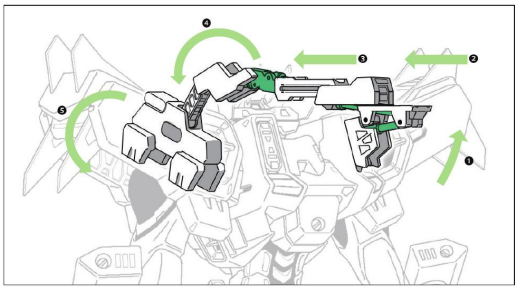
For TSFs from Western countries, the underarm method of mounting has become the mainstream method.

The overhead method requires space above the shoulders for it to operate, so there is the possibility that it cannot be deployed as intended in certain situations, such as in dense battles. However, the mechanism is technically simple and has the merit of high maintainability.

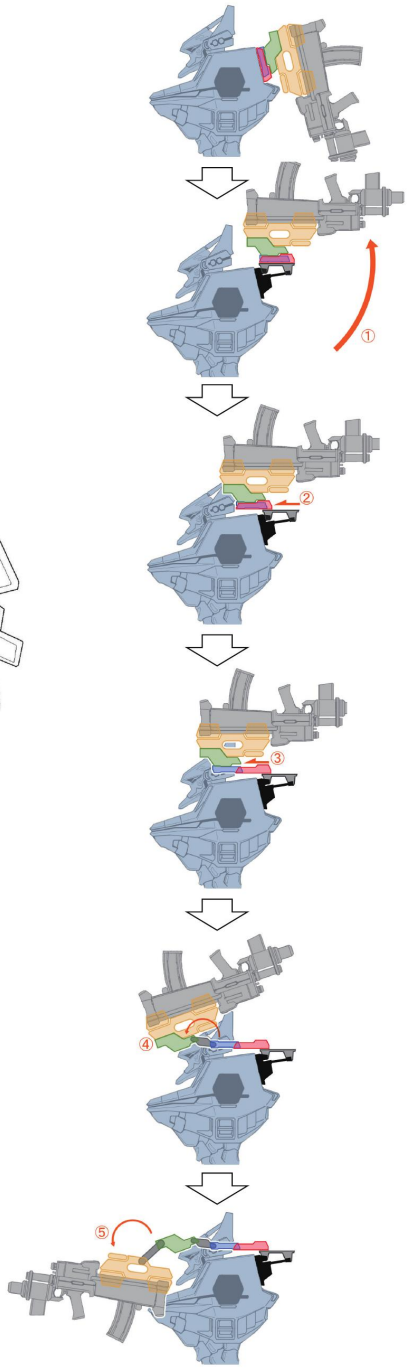


Overhead Deployment Diagram

The weapon is propped up by the electromagnetic, expandable carbon cylinders inside the craft (①), and the pallet slides (②~④), before the cylinder inside the mount pylon expands while rotating (④). Finally, the weapon's fastenings rotate (⑤) and the weapon is deployed to the front of the TSF.



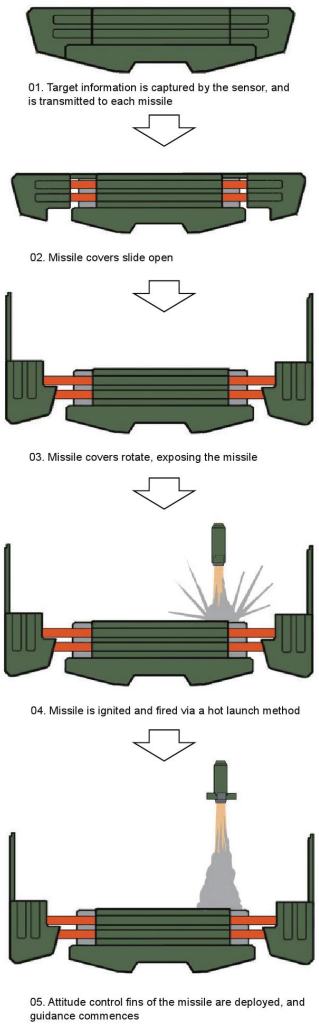
Mount Deployment Diagram





Launching Sequence

The missile system launches missiles from the container in the following sequence



01. Target information is captured by the sensor, and is transmitted to each missile

02. Missile covers slide open

03. Missile covers rotate, exposing the missile

04. Missile is ignited and fired via a hot launch method

05. Attitude control fins of the missile are deployed, and guidance commences

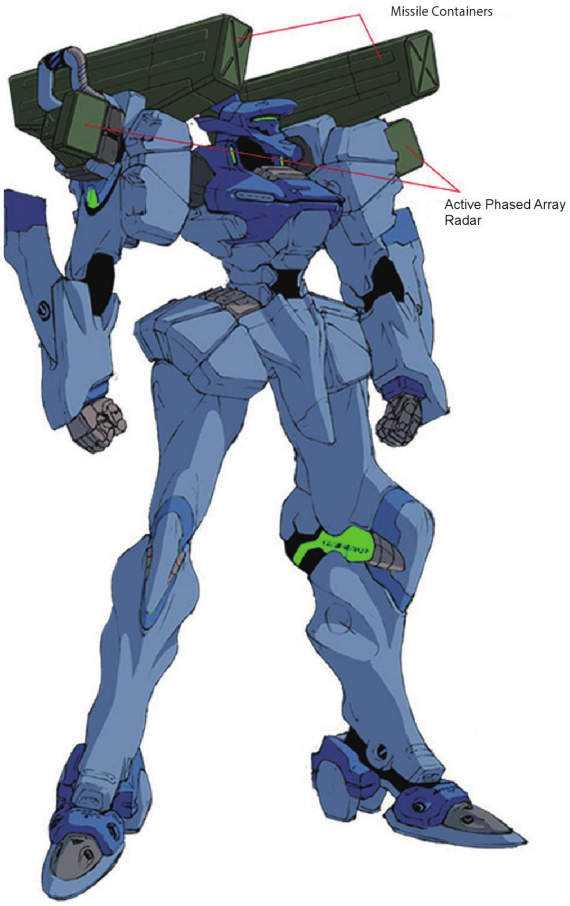
Type 92 Multi-Purpose Self-Guided Missile System

Developed by the US, the multi-purpose self-guided missile system is a suppressive weapon mounted on TSFs.

After being adopted by Japan and Europe, it started to be used worldwide. The system consists of missile containers, which can be used with various munitions such as AL missiles, and an active phased array radar for control. The missiles launched from the container are directed with information transmitted from the TSF. In order to avoid interception by the Laser class, each individual missile pursues its target while irregularly changing its path.

In the final stages of their flight, they are guided towards their target with an infrared line. The system can be adapted for many 2nd and 3rd-generation craft by switching the base of the system.

However, based on the constraints of having the missiles mounted in a container, there is a limit to the number of rounds and the size of the warheads. Although these are unable to compete with self-propelled rocket artillery vehicles in damage output, they gain an advantage in retaining maneuverability while conducting suppressive fire support.



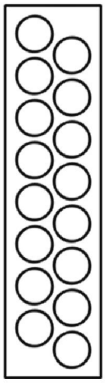








Placement of missiles



Radar

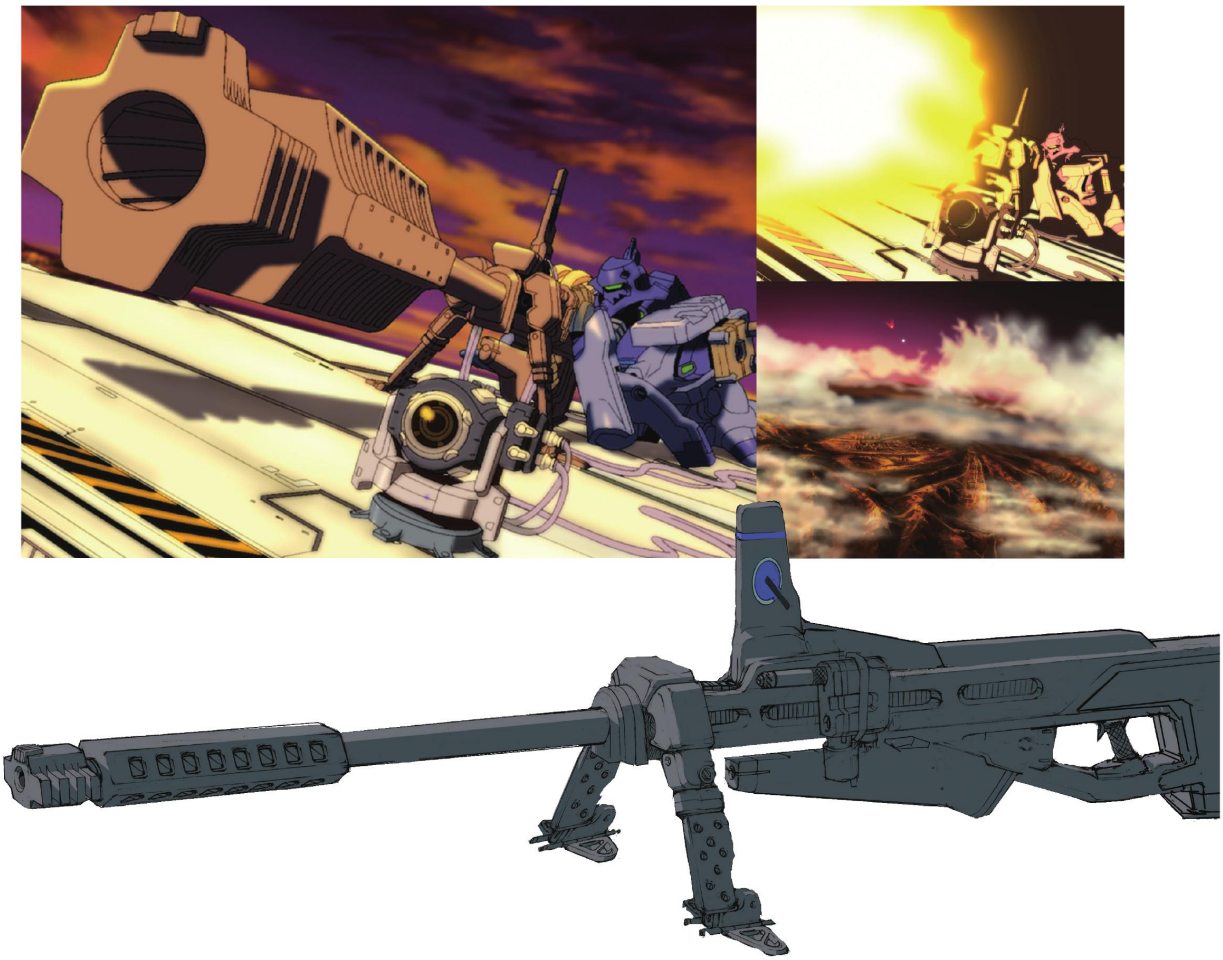
An active phased array radar is used to conduct intermediate stage guidance of the missile by capturing target information and transmitting it to the missile. Its role is to identify the target, calculate the ballistic flight route, and transmit that information to the missile. Its ability to identify targets is greater than radars mounted on TSFs.

Missile

The missiles used in the multi-purpose system have a range of approximately 4000m. The lens on the warhead is an infrared seeker, allowing it to be used in night combat, or within hives with dim lighting conditions. Fins on the outside of the missile are deployed after launching to help control attitude.

Missile Container

The missile container houses sixteen alternating missile tubes. A hot launch method is used, where the missile is ignited within the container. As a result, the interior of the container is damaged when firing. Because of this, containers are generally single-use, and are replaced entirely when resupplying.



Prototype 1200mm OTH Cannon (Over The Horizon Cannon)

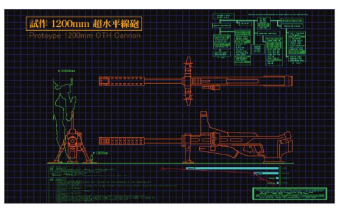
A prototype cannon designed to directly bombard hives, using shells travelling at high speeds from extreme distances. Intended for TSF use, the cannon's appearance is closer to that of a precision weapon, like a sniper rifle, than a cannon. The shell is fired with standard pressure, but as it passes through the barrel, the chambers inside ignite one by one and accelerate the shell to hypersonic speeds of over Mach 5.

After firing, a computer mounted on the shell uses two controlled detonations on its sides to adjust the shell's trajectory, allowing for the sniping of a target beyond the horizon. Since sights cannot be directly aligned when firing over the horizon, an indirect aiming system is used in conjunction with data links and satellites.

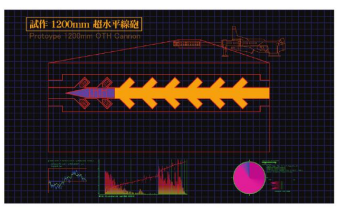
Because Mach 5 speeds are equal to that of atmospheric entry, the heat created from friction with air poses a significant problem.

Furthermore, the gunpowder ignition within the barrel affects its durability. The concept of accelerating a shell with gunpowder ignitions inside the barrel had been under development by the German Army during WWII, under the name 'V3', but they faced an issue with barrel durability, and their development ended in failure.

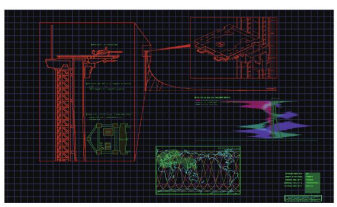
The OTH Cannon has not successfully eliminated this issue either. During design stages, it was expected to have a magazine of five rounds, but operational trials showed that its limit was three rounds, before the barrel could no longer be used. As a result, it never reached formal adoption, and its development was halted.



1200mm OTH Cannon Trihedral Figure. Its massive size can be seen when compared to a TSF.

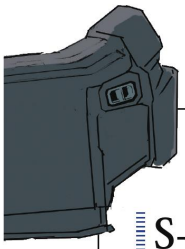


After firing, the shell passes through a total of 16 chambers inside the barrel, which ignite to accelerate the shell.



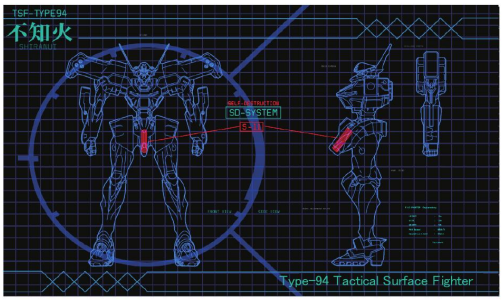
To make enough distance to reach beyond the horizon, firing is conducted from a high altitude. Here, the OTH cannon is fired from a maintenance lift attached to a linear catapult used for launching HSSTs.







S-11
SD-SYSTEM (SELF-DESTRUCTION-SYSTEM)



The location where the S-11 is mounted on the Shiranui. Craft equipped with the S-11 normally have it mounted in the groin block armor.

A high-powered explosive mounted within a TSF, carrying destructive power matching that of a small tactical nuclear weapon.

Their official purpose is for the destruction of hive reactors, but they can be used as a suicide weapon for Surface Pilots of incapacitated TSFs.

For the most efficient reactor destruction, and so that friendly units are not caught in the blast, the explosion can be directed. However, by adjusting the placement of the explosives, it can be used as an omni-directional bomb.

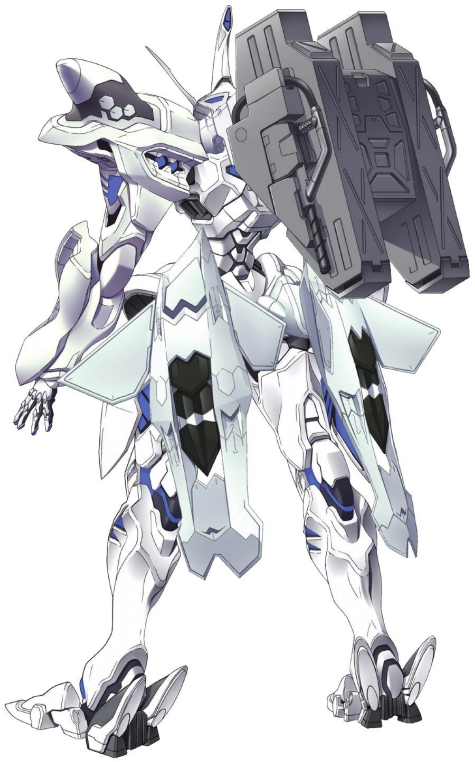
Also, because US military doctrine assumes the use of G-Bombs, the S-11 is not mounted on US TSFs.

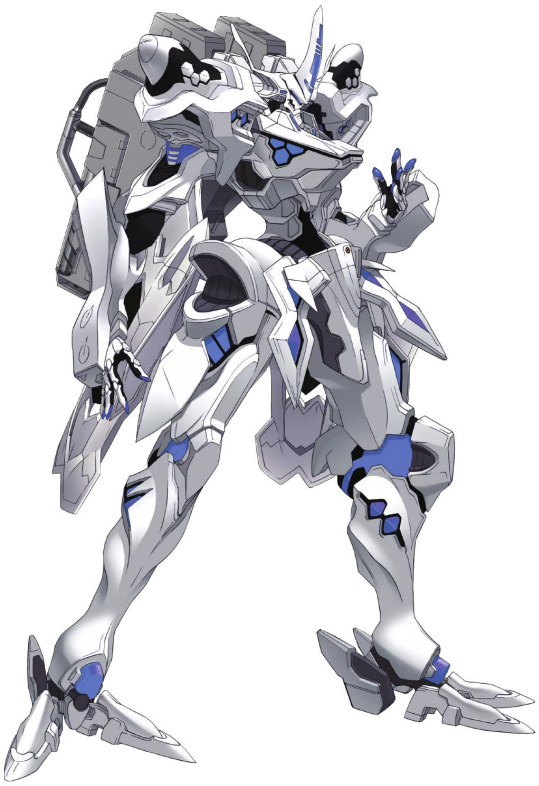


Lieutenant Hayase attempted to destroy the Yokohama Hive reactor by remote detonation of the S-11, but when the detonation timer was destroyed by BETA, she manually detonated it. She vanished in the explosion of the hive reactor and was pronounced KIA.



During Operation Cherry Blossom, after the Susano-O passed through the septum into the main hall, the 'brain' controlling the septum was destroyed with the S-11. By destroying the brain, the septum was disabled while closed, hence blocking enemy reinforcements.





Drop Tank

A drop tank is used to carry reserve fuel and propellant in cases where a TSF needs to remain operational for an extended period.

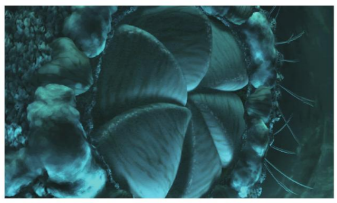
It is mounted on a TSF's back, in place of the mount pylon system. The 'drop' in drop tank refers to its ability to be discarded in emergency situations in order to lighten the load off of the craft.

However, most combat missions with BETA prioritize having mount pylons in order to access additional weapons such as assault cannons and melee blades, so the drop tank is normally reserved for long distance movement of an individual TSF, or in special operations.

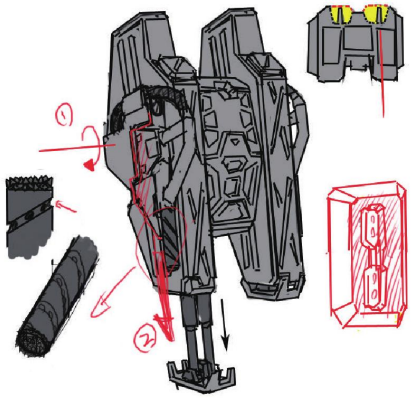
When refueling is required during a mission, the drop tank, having been secured from a supply container, can be temporarily loaded onto the rear mount to resupply fuel and propellant.



During Operation Cherry Blossom, drop tanks were used not only to supply fuel, but also to carry a chemical needed to open and close septa.



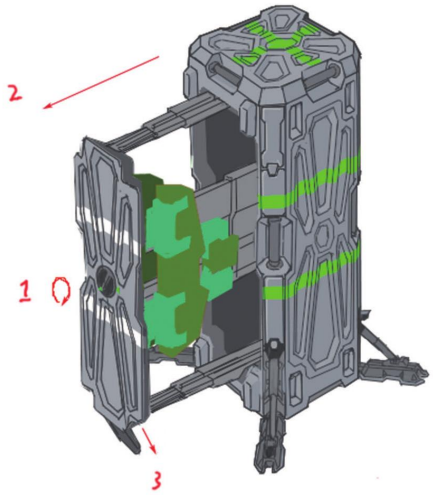
A septum that cut off the path towards Target Alpha. Although these are giant BETA, their extremely limited mental facilities make it more appropriate to call them living components.



A drop tank used in Operation Cherry Blossom. Modifications were conducted on a standard drop tank to attach drills, which could forcefully inject the chemical, and spikes for anchoring the tank. This tank was stored in the Susano-O until the septum was reached.

Supply Container

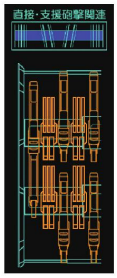
When conducting invasions into BETA controlled territory, supply containers can be deployed from orbit, under the cover of AL missiles. The containers are spread out along the TSFs' route, or near the airhead of the orbital drop unit. Using these in anti-human combat runs the risk of resupplying the enemy with weapons and ammunition instead. However, there is no such risk when facing the BETA. Furthermore, supply containers are used often, since they can be deployed even when BETA are still present, as they do not require the establishment of conventional supply lines. Of course, containers can be lost to interception by Laser class, and they can stray off their expected orbit path, but these are only minor issues compared to having ground units relegated to resupply duties rather than engaging in combat.





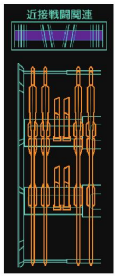
Internal Structure (IJF)

Supply containers are separated into six types based on their contents. Each container emits an identifying signal, so that its position, contents, and status can be checked via data link.



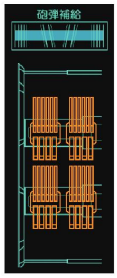
Direct and Support Fire Package

8 Type 87 Assault Cannons
4 Type 87 Support Assault Cannons
16 120mm Spare Magazines
24 36mm Spare Magazines



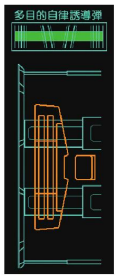
Close Quarters Combat Package

8 Type 74 PB Blades
8 Type 65 PB Knives



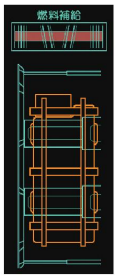
Ammunition Package

32 120mm Spare Magazines
48 36mm Spare Magazines



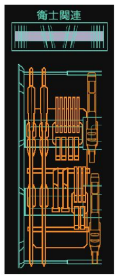
Multi-Purpose Self-Guided Missiles

1 Type 92 Multi-Purpose Self-Guided Missile System
(Includes a missile guidance sensor unit)



Fuel Supply Package

2 Fuel Supply Drop Tanks



Surface Pilot Package

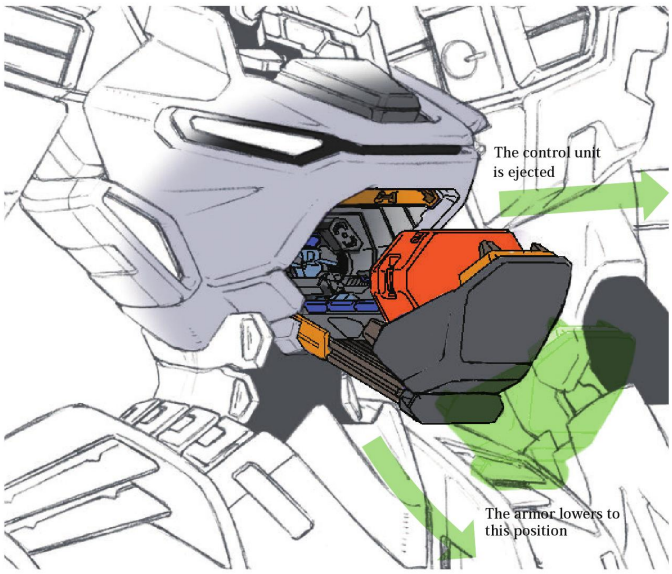
4 Type 87 Assault Cannons
6 120mm Spare Magazines
9 36mm Spare Magazines
2 Type 74 PB Blades
2 Type 65 PB Knives

TSF Cockpit and Exoskeleton

The following section will detail the cockpit (also known as the 'control unit'), which houses the Surface Pilot, as well as the integrated exoskeleton seat system and basic TSF control methods.

TSF Integrated Control System

The control system places the highest priority on life support and Surface Pilots' survival. This is because a lot of time and resources are invested into a Surface Pilot's training, and a skilled Surface Pilot is not easily replaced, especially since there is no substitute for combat experience. Although data links are able to accumulate and share this kind of experience, and self-learning control programs do exist, these pale in comparison to living Surface Pilots. With the unimaginable losses of human capital over the Great BETA War, Surface Pilots have become the most valuable 'weapon' in mankind's arsenal. Craft control and maneuverability are both important considerations when designing control systems, but a recurring theme in their design is in how they prioritize the survival rates of Surface Pilots.



Boarding Hatch

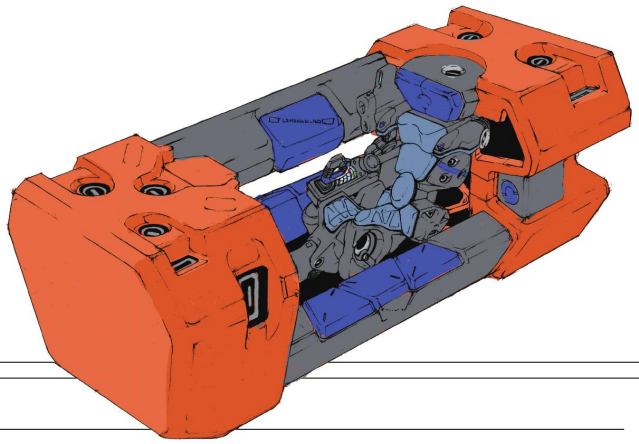
A pressurized hatch used by Surface Pilots to board or exit the TSF. The armored bulkhead on the chest or back of the TSF is released, and the control unit slides forwards or backwards along the guard rail.

Control Unit

The control unit, also known as the cockpit, is made up of parts including a connect seat (where the surface pilot is seated), a protective frame, console arms, an exoskeleton system (Mechanized Infantry Armor), and the main computer.

Control units are globally standardized, with the patent being held by US corporation Markin Berger.

There are two standard types of seat placement, the single seat and the multi-seat, but these can be adapted to a country's desired specifications. The Type 92 Tactical Control Unit is the Empire of Japan's licensed production of the cockpit.



Ejecting from the Craft

Bailout (Emergency Escape)

The control unit is ejected with rocket motors, after the armored bulkhead at the front or back is detonated. A gentle landing is ensured with air cushions. The Surface Pilot can then withdraw from the combat zone in an exoskeleton or a fortified suit.

When A Bailout Is Not Possible

If a Surface Pilot is trapped inside the craft, and a bailout cannot be performed due to either the TSF running aground or being deformed, a Surface Pilot can perform a 'Power Out' by destroying the cockpit with an exoskeleton. This involves manually activating 'Power Out' mode by operating a lever, then equipping a simplified air-tight helmet, before connecting the slave modules (arm/leg parts) inside the control unit's beam to the control seat. When the console arm and foot rests are covered, an exoskeleton is formed, which is then activated, and the pilot escapes the craft by destroying the cockpit from the inside.

Mechanized Infantry Armor Connect Seat

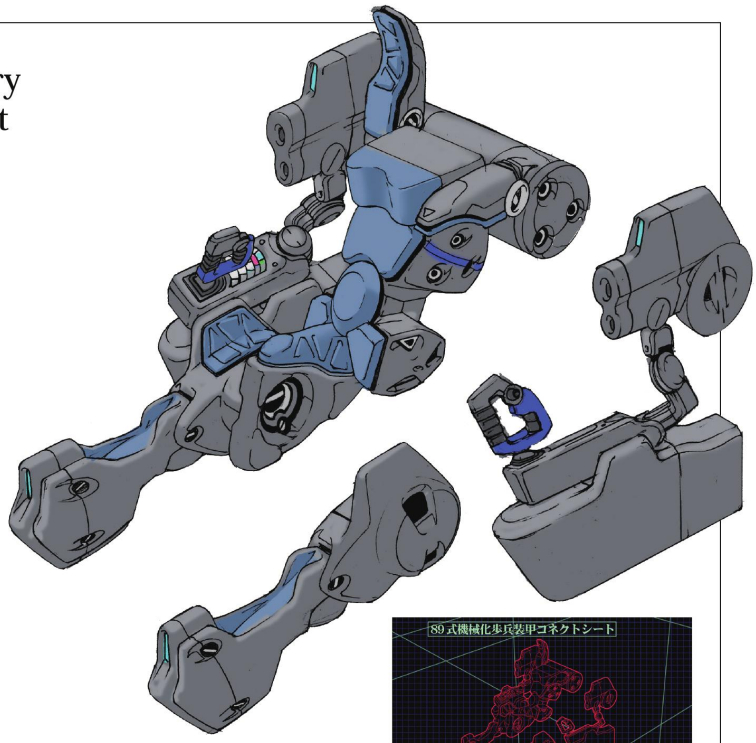
The control seat in the TSF control unit is a mechanized infantry armor connect seat, which serves as the core frame of the exoskeleton.

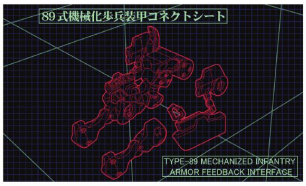
The control sticks govern the armament and attitude, and are placed above the left and right console arms (the master units for operating an exoskeleton). For overall control of the craft, foot pedals are used in conjunction with the console arms.

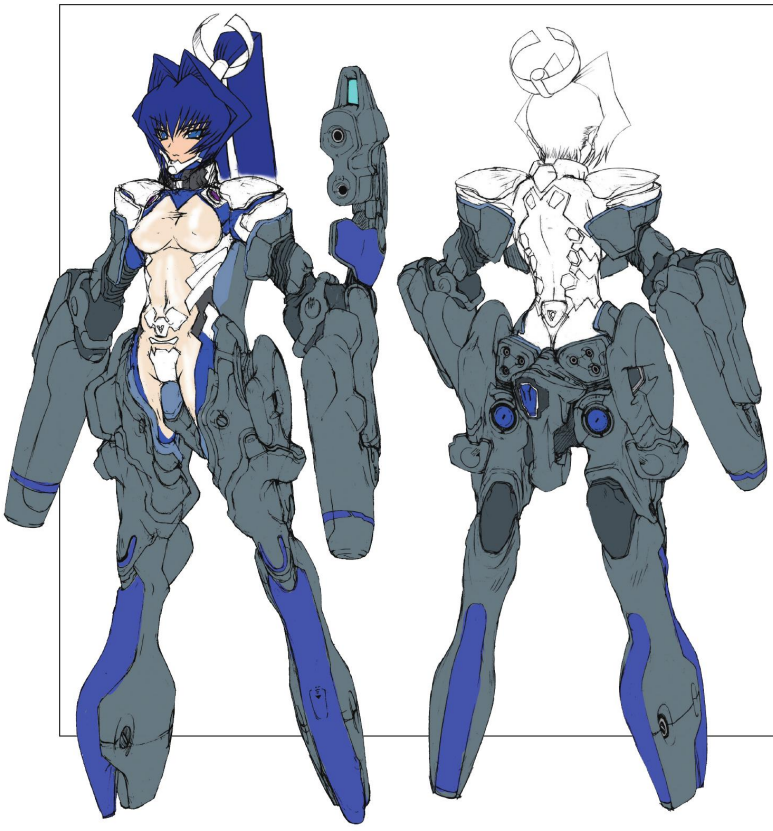
The main computer of the craft is mounted on this seat system. By connecting personal data from the Surface Pilot's fortified suit to it, indirect control of the craft or an exoskeleton can be performed by thoughts.

When seated, two methods are used concurrently to establish this connection; one with shock resistant gel sensors, and one that uses a wireless connection with an effective radius of 400m.

Though it may not look particularly comfortable, the seat's ergonomic design, coupled with the functions of the shock resistant gel, provides a comfortable and stress-free environment. Also, the fortified suit's anti-G functions, along with the locking mechanism on the back, neck, and waist maintains seating posture during high-G motion, and protects the body from damage upon collisions.







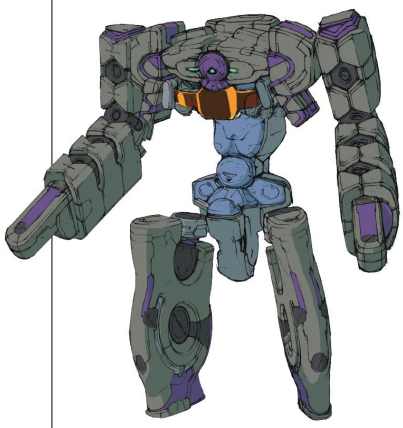
Type 87 Feedback Interface

Though it normally functions as a control seat, during a Power Out, it transforms into the core frame of the exoskeleton.

The shock resistant gel on the back, seat, and leg surfaces act as an interface allowing for control of the slave modules or attitude of the exoskeleton, through indirect thought control, much like when controlling a TSF.

Very little stress is placed on the Surface Pilot when controlling an exoskeleton, and combined with the sensory feedback of the fortified suit, the Surface Pilot essentially experiences no additional weight.

Due to this, the shock resistance provided by the frame and the electromagnetic carbon bands (carbonic actuators) is useful not only for conducting standard controls, but also for when experiencing several tons of additional weight, or when absorbing impacts. With these nullified, the operator is able to experience the control as being no different to moving their own body.



Type 89 Mechanized Infantry Armor

The Type 89 Mechanized Infantry Armor is the Surface Pilot ES (Exoskeleton) weapon that has been formally adopted by the IJF.

Produced by General Electronics, it has been accepted as the standard specification equipment for the Markin Berger control unit. In Japan, Mitsuhishi Heavy Industries is the manufacturer of the licensed production.

History

The ES weapons, also called 'mechanized infantry armor' or 'exoskeletons', are surface combat weapons for personnel, based on the structures and theories behind the MMUs (Manned Maneuvering Unit) used in low gravity environments like on the lunar surface or in space. Commonly, the larger variants are referred to as 'ES', whereas the lighter, human-sized versions are called 'FP' (Feedback Protector). The MMU acts as a power assist or a work machine, featuring a master/slave function. They are worn over a space suit, and were used for space work including excavation and construction on the lunar surface or in space.

During the early stages of the Lunar War, lunar base security forces, lacking in surface combat weapons, used MMUs in combat against the BETA.

This contributed to idea that deciding to weaponize MMUs was superior in every aspect to any development of surface weapons for extraterrestrial use. This decision focused on factors such as how the beginning of the war needed a rapid bolstering of military strength, the financial and time costs associated with development and transportation to the Moon, as well as the issues with orbital deployment.

As conditions on the Moon deteriorated, development shifted towards using these on Earth as conventional weapons, which were easy to mass produce and could be used against the BETA, with the simplification of life support functions, the addition of a jump unit, and by increasing the strength of armor and weapons.

The high versatility of the exoskeleton saw it gain much attention as a possible solution to the major problems of the TSF (the low survival rates, and risk of pilots being trapped within the craft when grounding), which was a new concept weapon being developed in parallel. Research and development commenced for a partitioned cockpit system using an exoskeleton as its core.

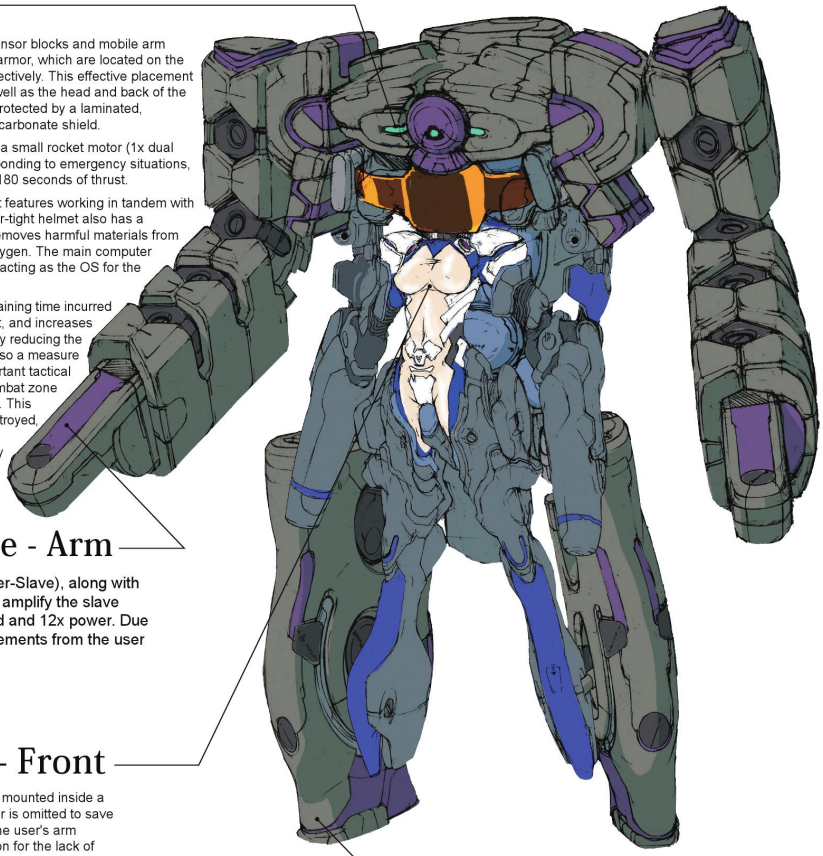
Main Block

The main block consists of sensor blocks and mobile arm sections, covered in composite armor, which are located on the upper-front and upper-rear respectively. This effective placement protects the main computer as well as the head and back of the Surface Pilot. The front side is protected by a laminated, transparent, and reinforced polycarbonate shield.

Also, mounted on the back is a small rocket motor (1x dual injection nozzle) capable of responding to emergency situations, such as pitfall drops, with up to 180 seconds of thrust.

Aside from having life support features working in tandem with the fortified suit, the simplified air-tight helmet also has a breathing support system that removes harmful materials from the air and can supply stored oxygen. The main computer functions as it does on the TSF, acting as the OS for the exoskeleton.

This removes the additional training time incurred for learning each new armament, and increases the Surface Pilot's survival rate by reducing the complexity of operation. It was also a measure to promote the recovery of important tactical information, especially since combat zone data links didn't exist at the time. This means that even if the TSF is destroyed, the exoskeleton, which runs the same OS, would be able to carry the data and return it.



Slave Module - Arm

The PMS (Powered Master-Slave), along with indirect thought control, can amplify the slave module's tracing to 5x speed and 12x power. Due to this, even small arm movements from the user can result in feedback.

Main Block - Front

Due to the limitations of being mounted inside a TSF's control unit, the front armor is omitted to save space and weight, and to keep the user's arm movements free. The main reason for the lack of frontal armor is that their main intended use is not for combat. Another factor is that the fortified suit's material strength, close to that of a lightly armored vehicle, is sufficient to at least withdraw from the battlefield.

In contrast, mechanized infantry armor intended for combat is entirely covered by composite armor.

Slave Module - Leg

The legs can be controlled by the same combination of the PMS and indirect thought control, but the slave module legs connected to the core frame amplify the movements up to magnitudes of 8x speed and 17x power.

As the user is removed from the shocks and increased weight applied to the whole craft or its slave modules, by the cushioning mechanism of the core frame, they only receive the minimum required sensory feedback resistance during the craft's operation.

Type 99 Surface Pilot Fortified Suit

Fortified suits are peripheral TSF equipment worn by Surface Pilots. They are a type of protective clothing and are equipped when a Surface Pilot boards a TSF. They include the main interface functions of the craft's control system.

The suit includes a headset, hard protectors that double as storage, a communications device, GPS transmitters, anti-G functions, and basic life support functions such as anti-shock functions and monitors for vitals and body temperature.

Furthermore, the suit is made of a protective film, which is highly elastic but is also able to immediately harden in response to shocks. Other than impacts, it can also resist cuts, heat and cold, and toxins.

The internal battery lasts for twelve hours when fully operational, but when kept in power-saving mode, where only life support functions are kept on, the functions last for 72 hours. When seated in a TSF, it operates with the TSF's electrical power and automatically enters its charging mode.

It comes with a pack that can store 2 liters of water, but during emergency mode, it is able to filter and recycle sweat and urine.

Very little waste is produced by Surface Pilots, since synthetic foods have a high digestion and nutrition absorption rate, and certain drugs can also be added to the food to suppress intestinal functions. As a result, the highly elastic waste pack's maximum capacity is set to 500g.

In the IJF, four types exist for males or females, and for cadets or formal soldiers. These are differentiated by color, and by some functions and abilities.

Also, an external battery unit (C-Warning Jacket) accompanies the suit as auxiliary equipment.

When controlling TSFs, the suit acts as an interface for indirect thought control by measuring brain waves and the body's current through the headset and suit. The intents of the user are statistically nominalized, before the data is renewed, and the predicted movements are sent to the TSF or exoskeleton.

The headset functions as a sub-computer of the TSF and assists in the Surface Pilot's operations, by acting as a data link terminal for combat zone information.

The high resolution retinal projector of the helmet removes both the need for a display in the cockpit, and the need for the user to have good vision.

The Type 99 Surface Pilot Fortified Suit in the diagram below is that used by the UN Forces.

The Imperial Royal guard adopts a specifically developed Type 0 Surface Pilot Fortified Suit.

Headset

A data link terminal for combat zone information that is also the core of the suit.
Once the two tips on the cheeks of the headset are pressed, a retinal projection device is deployed in front of the user's eyes.
By using the headset in combination with the entire suit, brain waves and the body's current can be measured, making them function as an interface for the indirect control of the TSF.

Special Protective Film

The coating that adheres to the entire body acts as a multi-function 'data skin'. It can gather vital data from muscle voltage measurements, recycle moisture, and can even perform electronic contraction to prevent the effects of Gs on blood circulation. The fortified suits for trainees tend to use a colorless, semi-translucent film for three main reasons.
Firstly, it is to reduce the sense of shame from the shared unisex frontline facilities.
Secondly, it is to make the locations of any injuries on cadets immediately visible, since they are more likely to have serious accidents.
Finally, the trainees' film dissolves more quickly with the decomposition agent.
During 'Muv-Luv Alternative', an exception was made for Shirogane Takeru, who was given a regular, colored fortified suit, since there were none left for male trainees.



Neck Protector

A hard protector that negates damage to the neck region caused by changes in Gs during high speed movement. It contains the major pieces of electronic equipment, such as the computers. On the back of the neck is a lock that connects to the seat, to secure the body, waist, and lower legs.

Rescue Patch

An emergency escape device that is activated by pressing the rescue patches on both clavicles. This releases a dissolving solution, softening the protective film until it is able to be torn by hand. It is most often used when emergency surgery is needed on a rescued Surface Pilot.

Connect Protector - Leg Area

The hard boots and calf protectors mainly function to fix the Surface Pilot to the seat and to connect to the exoskeleton. When controlling a TSF or exoskeleton, the insoles of the boots act as foot pedals. Pressure sensors and the feedback of the fortified suit recreate resistance, enabling this subtle input method, which rivals that of analogue control.

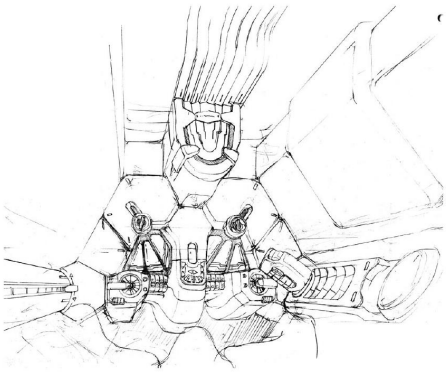
TSF Control

The basic control of a TSF is performed with the two control sticks attached to the console arms on the left and right of the seat, and with the foot pedals inside the hard boots.

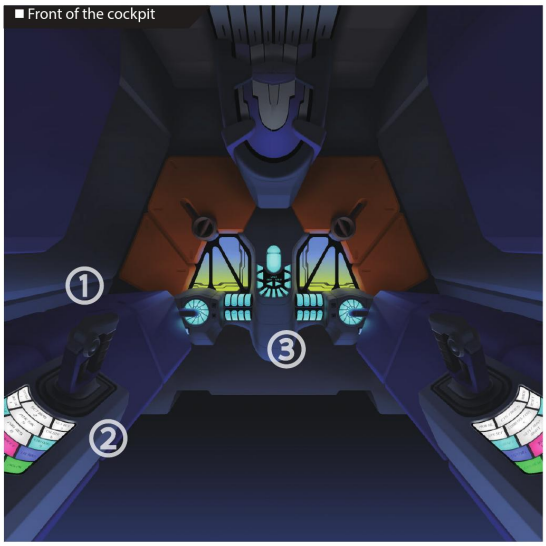
However, no matter how much computer support is available, it is impossible to cover the near infinite range of TSF movements with only the control sticks and pedals.

To cover for this, the Surface Pilot and TSF are connected through indirect thought control, which passes through the interface known as the fortified suit (this also applies to exoskeleton control).

This system statistically analyzes changes in muscle voltage as well as the brain waves generated from thoughts, before inputting them as commands for the TSF to perform preliminary actions. A final confirmation is set with an input from the control sticks or pedals, locking in the input as an operational action.



■ Front of the cockpit



COCKPIT LAYOUT

① Control Stick

The design of the control stick and its surroundings adopt the concept of HOTAS (Hands-On Throttle And Stick). The front edge of the grip frame has switches for functions such as armament selection, communications, and display controls. It is designed to allow almost all inputs to be performed using just the fingers, without removing the Surface Pilot's hand from the control stick. It also acts as a backup for when the retinal projection device is malfunctioning.

② Control Panel

This is used for advanced craft controls such as navigations, autopilot, communications, and combat zone information analysis, which cannot be properly operated with just thought control or control sticks. In cases where it would take more time to use the retinal projection to perform actions, direct inputs are entered into this panel.

③ S-11 Detonation Switch

The detonator of the S-11 self-destruct device.
By breaking the plastic protective cover and pressing the switch, after the safety device has been released, the S-11 can be detonated.



Indirect Thought Control

The fortified suit reads Surface Pilot's brain waves and nervous system current from the headset and the protective gel. From there, a microcomputer combines and accumulates data, such as the Surface Pilot's vital signs, and the TSF maneuvers log. This data is analyzed and renewed constantly to retain the most recent thought data.

As the Surface Pilot gains experience, data specific to that pilot is accumulated, and the information reading becomes optimized. Eventually, the Surface Pilot is able to control the TSF like an extension of their own arms and legs.

The craft's control log is shared and standardized through a data link, increasing the basic movement, maneuverability, and survivability. On the other hand, personal data is accumulated on the fortified suit.

Also, various types of feedback, such as an anti-G functions using electronic contraction, can be applied over a wide range of uses such as minimizing motion sickness through sensory feedback and recreating the tactile senses.

Even though this system appears to be flawless, it has its limitations, especially regarding the synchronization of data.

If too much of a different Surface Pilot's logs exist in a TSF, or if a new craft is boarded after being rolled out, a certain period of mastery is required until the craft's accumulated data matches that of the fortified suit. During this period, the Surface Pilot experiences a slight sense of misalignment in movement sensations.

Because of this, armies using TSFs have measures in place to avoid sharing craft among different Surface Pilots as much as possible, even in the case of spares.





Retinal Projection System

Given the space constraints of the closed cockpit, mounting a large display would not be possible. Hence, a retinal projection display is used in TSFs.

Retinal projection is a display method whereby an image is directly sent to the retina by an LED laser, from a device placed on the front of the control unit, or from the cheek part of the fortified suit. As a result, the projected image, or window, appears to float in the Surface Pilot's vision.

Used in tandem with indirect thought control, various operations can be performed, such as moving the windows, selecting modes, adjusting the transparency, and selecting armaments. These can be performed by actions such as changing focal points or staring, and allows either the projected image of the exterior monitor to match the Surface Pilot's neck and eye movements, or for the Surface Pilot to manually look at separate windows themselves.

Also, a retractable LCD is stored inside the control unit's beam as a support system during maintenance, or in emergency situations, such as when the retinal projection device malfunctions.



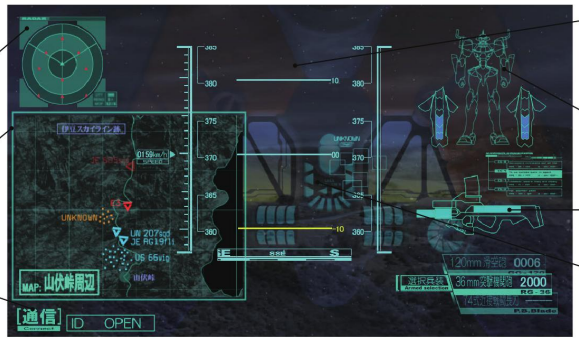
Retinal Projective System

Windows
Vital information such as topographic maps, data, and warning dialogs are displayed in individual windows.

Radar
Radar information with the craft's bearing is displayed. Tactical information gathered from allies through data links is sequentially combined, displayed, and renewed.

Combat Zone Map
Tactical information including positions of enemies and friendly units, and the surrounding terrain is displayed. Although it is a bird's eye view by default, it is possible to seamlessly switch point of view, since it is a three-dimensional image.

Communications
The current channel and the types of lines are displayed. When receiving communications, the image of the sender is displayed in an individual window, but options exist to remove this display.



Background
The content of the background can be freely chosen, but the default settings are of exterior monitor footage. A computer combines and processes footage from the external monitors located around the craft, emulating the state of a spherical three-dimensional image, with the user seated and floating in the center.

Craft Status
The conditions of several components are displayed, including the output of the jump unit, armor damage, remaining fuel, and remaining jump unit propellant.

Armament
The currently selected weapon, the remaining rounds, and the weapon's condition are displayed.

Altimeter, Speedometer
These display things such as height, speed, direction, bearing, angle of attack, flight load (Gs), target designation, distance to the target, and relative speed.

XM3: An OS with a Revolutionary Concept

Apart from basic movements such as walking and stopping, the main features of a TSF's OS include autonomous attitude control, which can prevent mishaps such as overturning or falling.

However, these are merely support functions that allow the Surface Pilot to focus on the mission or on combat. On the other hand, the latest OS (XM3) developed by Alternative 4 was able to greatly optimize and improve capabilities, rather than just including support functions.

The first stage of development involved demonstrations of test pilots performing special maneuvers.

Firstly, the OS accumulated movement data collected from combat, before analyzing it for the most frequent movements. The OS then converted these into patterns, before analyzing movements that would be considered beyond the range of normal operations. These special movements were also converted into patterns and integrated into the system.

XM3 is able to optimize the prediction of actions while using this data and constantly monitoring the Surface Pilot's inputs and thoughts. This creates almost zero time lag between the preliminary movement and the performance of the confirmed control input.

Another revolutionary concept is the advanced input methods of the craft controls and the ability to voluntarily undo them.

Through this, it was possible to cancel a movement pattern midway, as well as removing the split second time lags between actions (committed time) caused by inertia and recoil, which were present on current operating systems.

In order to run these processes with certainty, all craft that implement XM3 had their main computer replaced with a high performance, parallel-processing type, which had been developed by Alternative 4.

By improving calculating abilities, the craft control data that had been collected could constantly respond and be corrected to whichever situations arose on the battlefield.

As a result, whereas old TSF operating systems could only 'support' basic movements such as walking, jumping, and firing, XM3 had evolved to a level where it could 'reinforce' the combat ability of Surface Pilots, regardless of skill level.

With the retrofitting to XM3, newly assigned Surface Pilots are able to easily recreate the craft controls and movements of the aces. It is no exaggeration to say that this significantly increased the combat potential for all of humanity.



The operational tests of XM3 were conducted in the 207th Flight Cadets. During the 12-5 Incident, said training unit was pursued by coup forces consisting of experienced Surface Pilots, but achieved a miracle where all were able to return alive, proving the ability of the new OS.



XM3 is also installed on A-01's Shiranuis, and it greatly helped them fight through many intense battles. It had also been trialed on the Takemikazuchis that the UN Forces had requisitioned for Operation Cherry Blossom.

TSF Transportation Methods

A TSF's flight is mainly used for combat maneuvers, and they excel in acceleration, but they do not have a particularly long cruising range. Due to this, movement to distant areas of operation, or movement between bases is conducted by land-based transportation with trailers. When transporting many craft, naval transportation with transport ships or TSF carriers are primarily used. Air transport can be conducted with reentry destroyers (HSST), but in areas where there is no threat of Laser-class interception, large transport aircraft are also used. TSAs, such as the A-6, which are capable of moving underwater, are transported with submarine carriers to the combat area, and are then deployed from the carrier while submerged. After their assault landing, they construct a beachhead while receiving fire support from the submarine carrier.

Air Transportation

Transportation by flight is limited, since it cannot be conducted where there is the risk of interception by Laser-class BETA, and the number of craft that can be transported is comparatively low. However, it is the only method that allows for quick, long-distance transportation of TSFs.

TSF Transportation Aircraft

Antonof An-225 Mriya

The An-255 Mriya (NATO Designation 'Cossack') was developed from the Soviet-made An-124 Ruslan (NATO Designation 'Condor'), which was the world's biggest transport aircraft at the time of its development.

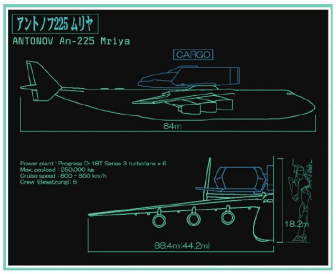
The An-124's four engines were increased to six on the An-225, and the fuselage was lengthened while the airframe was enlarged. The number of tail fins was increased to two.

As a result, the official payload increased from the An-124's 150 metric tons to 250 metric tons on the An-225, but it had an operational capacity of over 300 metric tons.

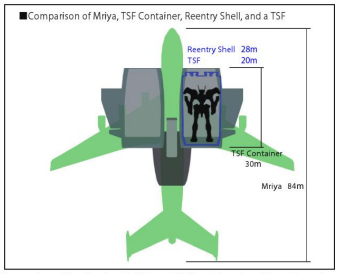
Originally, only one craft of the An-225 was built, in order to transport the Soviet space shuttle 'Buran', but the high versatility of its massive payload brought it into mass production.

Currently, it is vital not only for transporting resources, but for airlifting TSFs. Many An-225s are used around the Pacific and Atlantic Oceans, which are out of laser attack range.





The height of an An-225 while carrying a TSF container is approximately 18m. This is almost the same height as a standing TSF.



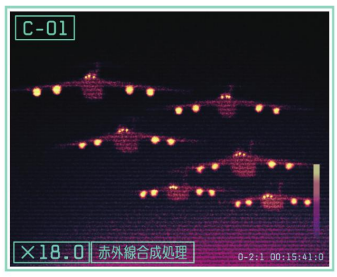
A comparison of the size of an An-225 and a TSF container viewed from above. A reentry shell from a HSST is being used as cargo.



During the 12-5 Incident, they were used for an airborne operation. However, as the An-225 was not designed with airborne drops in mind, it was an extremely dangerous operation in technical terms, and it also ran the risk of flying into laser attack range.

C-5 Transport Aircraft

A large transport aircraft that can carry a payload of up to 120 metric tons or 345 personnel, and is mainly used by the US Air Force. Both the nose and tail of the plane are the front and rear access flip-up doors to the cargo hold. With loading ramps on both sides, it is possible to quickly load or dismount cargo by opening both doors at once.



Reentry Destroyer

HSST Hyper Surface Shuttle Transporter

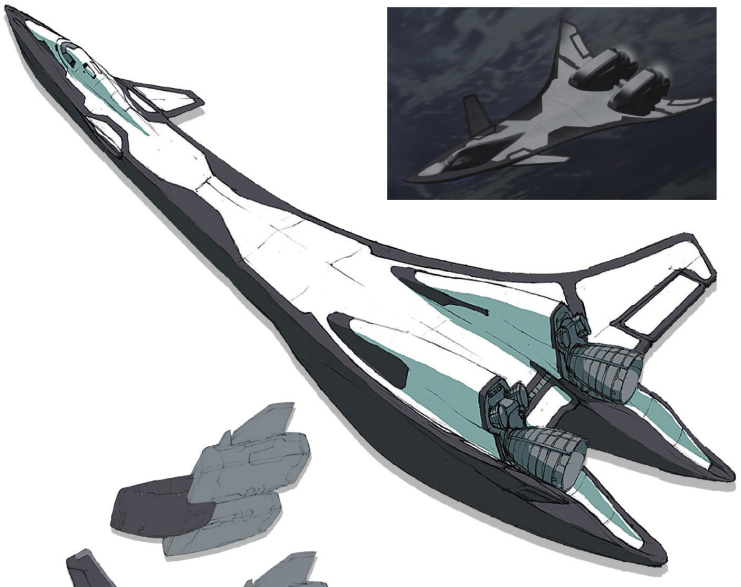
Despite bearing the name 'destroyer' there are no fixed armaments mounted on the HSST.

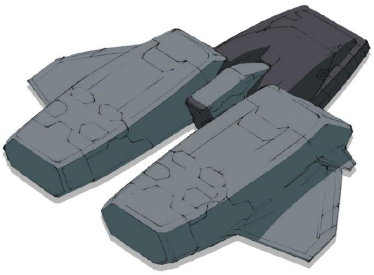
It is an Earth reentry space shuttle, fitted with anti-laser armor, and it is used in airborne transportation missions when there are no BETA along the flight path, and for orbital drop operations. Its total length is approximately 60m.

When launching, it uses an external fuel tank and a booster rocket, or a linear catapult, but it is capable of landing on runways when returning to Earth.

Although it is possible to deploy it to lunar orbit by equipping strengthened boosters, it is not currently used in this way.

When conducting orbital drop missions with orbital drop corps (Orbit Divers), each HSST loads a single reentry cargo shell, which carries two anti-laser armored capsules, each containing a single TSF.

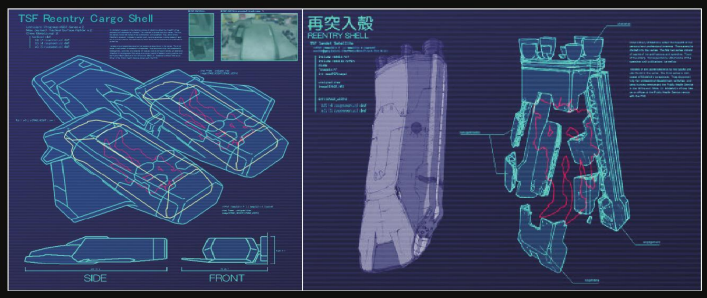


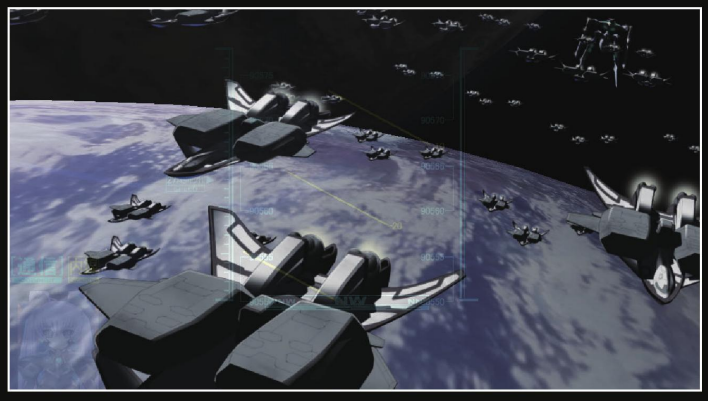


The lower part of the craft is protected by thermal insulation, which is necessary when conducting atmospheric reentry. To protect against air friction and air resistance, it has a curved, streamlined shape, and its engine nozzle is placed on top of the craft to protect it from atmospheric weathering.

Reentry Cargo Shell

An anti-laser armored capsule can be loaded on both its left and right. During orbital drop operations, these store TSFs to be dropped towards the target.





Orbital Drop Tactics

Orbital drop tactics have been used in many operations, such as in Operation Cherry Blossom. A reentry shell is detached from the HSST above the entry orbital trajectory point, and falls to the hive. The HSST continues its flight and returns to the surface base.

Once the armored capsule breaks away from the reentry shell, which falls towards the hive, the shell re-accelerates, moving past the capsule itself, shielding it from BETA laser attacks. The shell's impact can also be used to deal damage to the BETA.

The TSFs break away from the armored capsule at an altitude of approximately 2000m and form an element while falling together.

After falling through the heavy metal cloud created by the AL missile, the TSFs lose their anti-laser support and must dodge laser attacks by themselves. While still falling, the TSFs begin to attack, with the Laser classes as the first priority targets.

Upon landing with the supply container, which is dropped simultaneously, they reform their unit and establish an airhead.

Ground Transportation

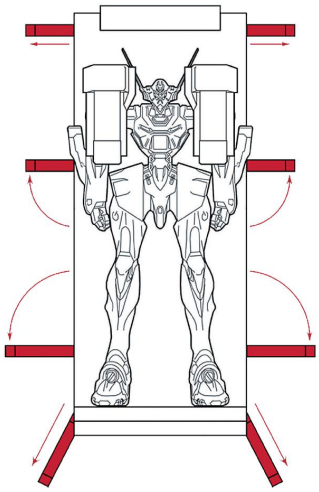
Using ground routes allows for the transportation of not only the TSFs themselves, but also their armaments, ammunition, and even the support personnel, such as mechanics. Even when facilities are not available at the destination, the maintenance trailer and transport support vehicles can be converted into a basic hangar, where TSFs can immediately prepare for combat.

TSF Transport Vehicles

Type 87 Maintenance Trailer

A trailer used to transport TSFs. When moving a TSF to a remote location, this truck is favored due to its fuel mileage and range. Furthermore, alongside basic maintenance functions, the corresponding transport vehicles also carry various weapons, so it is possible to conduct deployment preparations or perform emergency maintenance, even when away from a base facility.

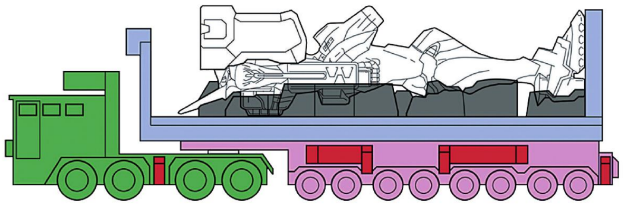




TSF Deployment with the Type 87 Maintenance Trailer （1）

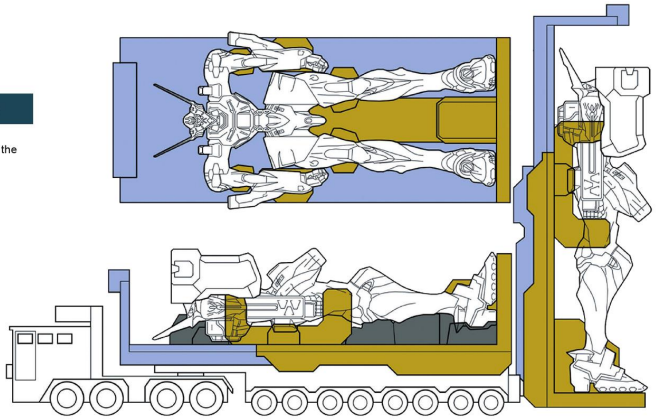
In order to be space-efficient while on the stretcher, the sub-arm moves the shoulder block armor to the front of the craft.

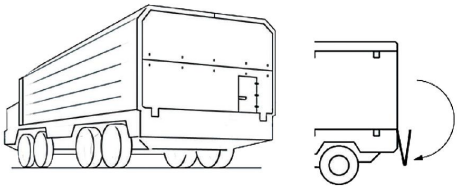
When the container is operated to activate the TSF, eight outriggers are deployed and secure the vehicle to the surface.



TSF Deployment with the Type 87 Maintenance Trailer （2）

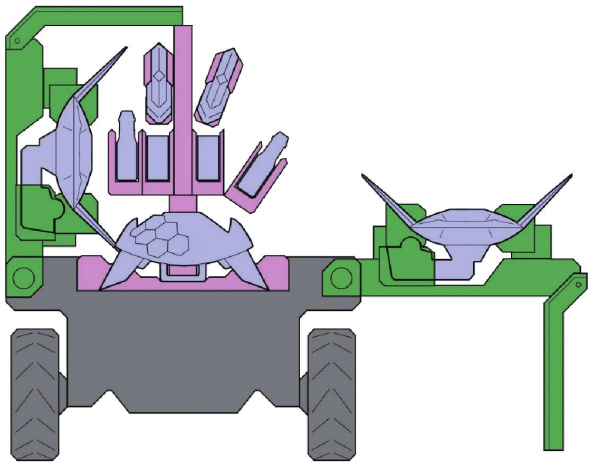
Hydraulic pressure brings the container to a vertical, upright position. After the TSF is activated, the arm, waist, and leg locks are released, and the TSF is deployed.





Transporting TSF Armaments with a Support Transport Vehicle

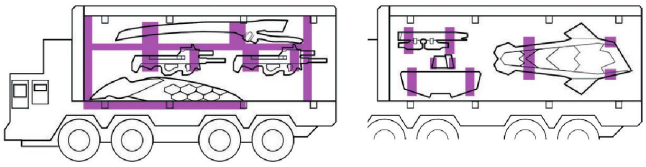
A support transport vehicle accompanies the TSF container being transported. Equipment such as the TSF's jump unit and various armaments are loaded in this container.



Armament Container Structure

The support transport vehicle's container opens on the left and right sides, revealing the weapon storage rack. As they are designed for individual operation, they can be quickly loaded and unloaded.

A TSF can equip not only main arm equipment such as the assault cannon or supplemental armor by itself, but is also able to equip its jump unit and mount pylon system, by taking advantage of the wide range of movements available to its manipulators and joints.



Loading Example on a Support Transport Vehicle

The diagram shows the placement of the following: 2x jump units, 2x mount pylon systems, 4x assault cannons, 2x melee blades, 1x multi-purpose supplemental armor, 2x multi-purpose guided missile system.

Naval Transport

When conducting naval transport or transoceanic attacks, TSF carriers are used.

Before the introduction of TSF-specific carriers, standard aircraft carriers were used, but these raised several concerns. Various suggestions were made, which were implemented one by one into new vessels. These included applying laser vaporizing coating, which is vital for anti-BETA combat, making the draft deeper in order to lower the visible portion of the carrier, and using a two-layered catapult.

The Imperial Japanese Navy appropriated super tankers into simplified TSF carriers that can house a total of 16 TSFs each.

While being transported, they are stored upright, underneath the armored deck. When deploying, the deck opens, and they depart from there. However, their support functions are limited only to basic maintenance and resupplying, so they were not classified as carriers, but as landing vessels.

When withdrawing, the TSFs do not store themselves in a carrier before escaping, in order to lower the risks associated with being attacked while in storage; if the carrier is attacked, the entire TSF cargo can be lost. Rather, TSF carriers are placed as stepping stones so that repeated boost jumps can let the TSF escape laser attack range, or to a carrier group.



TSF Maintenance

TSFs consist of much precise, mechanical equipment, so in order to maintain their operation, high expertise maintenance is required. However, in order to make the most of maintenance facilities, maintenance operations need to be highly versatile and able to adapt to a variety of TSFs. This section will detail the maintenance systems, which boast both high expertise and versatility.

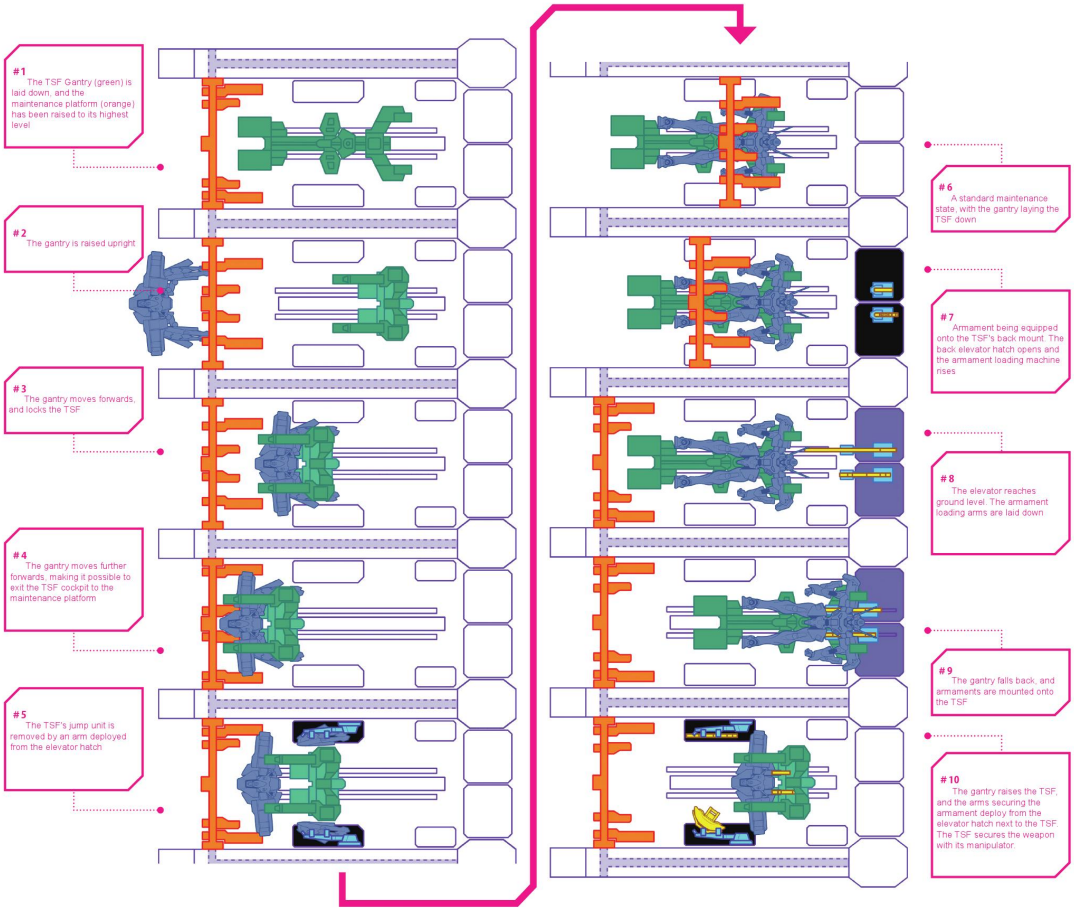


TSF Hangar

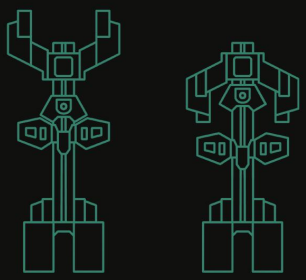
As TSFs usually reach heights of 18m, mobile platforms are installed at TSF hangars to allow efficient maintenance to be conducted. These platforms also function as gates, connecting passages from each floor. When performing maintenance, it is possible to do so regardless of the craft's type by sliding and adjusting the various arms of the TSF, as well as moving the platform.

TSF Gantry

TSFs remain in a standing, upright posture with the use of the operating system's autonomous control. However, when maintenance is performed with the system deactivated, the TSF must be supported by a specialized gantry to maintain and adjust its posture. The replacement of parts and changing of equipment are both conducted by the arm inside the hangar.



TSF Gantry Operation Diagram



A side view of the TSF gantry, illustrated above in green.
It holds the TSF by its shoulders, waist, and legs, and can adapt to the different frames of various craft, since each section is mobile.



A TSF Hangar at Yokohama Base during Operation Cherry Blossom.
The base suffered significant damage due to a BETA attack, but fortunately, there were enough undamaged hangars that preparations could made for the TSFs that were being deployed to Operation Cherry Blossom.

"Tactical Surface Fighter"

History of development



History of TSF Development Illustration Fujiro

When the military is involved, there is no room for a romantic spirit of adventure or for sentimentality. If your power is less than your enemy's, you will be led down the path of ruin. Hence, military weapons are required to demonstrate absolute power in both offense and defense in order to vanquish enemies.

TSFs are classified as humanoid weapons, but generally, machines that emulate humans are difficult to control, and due to their complexity, they are both costly and difficult to manufacture.

Also, if one becomes too tall, it makes itself a larger target, and since it is an air weapon as well as a surface weapon, there are set limits to its armor and weight so it can retain both its flying and walking functions.

Although conventional military strategies dictate that 'a jack of all trades is a master of none', the TSF has surpassed this, and became a vital weapon for mankind. After all, just as TSFs break norms, so too do the enemy; the BETA, an extraterrestrial species, against which conventional strategies no longer apply.

This section will explore the research and development history of TSFs to understand their designs and doctrines as well as the active role they have taken as results-oriented weapons.

Evolution of the MMU

After WWII, the Cold War began, and many countries unanimously commenced space development. The US and the EU announced the construction of the massive unmanned probe 'Icarus I', as part of the Daedalus Project, which started in 1950.

With the goal of exploring extrasolar planets, parts were constructed on Earth and on the Moon before being assembled in orbit over several years.

However, in order to sustain flight over several light years after leaving the solar system, it required either nuclear fusion rockets, or a massive cargo of fuel pellets. Also, it needed to mount a large amount of observational equipment, so it was necessary to enlarge the craft.

It was decided that various components and materials needed to be enlarged, but this resulted in some of the existing space construction machinery no longer being able to cope with the work. The program then saw a steady series of delays.

Fearing losing the space race to the Eastern Bloc, the US approved an additional development program for Large MMUs (Manned Maneuvering Unit) in 1955.

Their required specifications included



the ability to secure, carry, and even assemble materials. As of that point in time, the materials had been towed in by shuttles, and were constructed using sheer manpower.

This program sought to recover the lost time from the Icarus I's cumulative delays. After occasionally trialing construction work locally, the program bore fruit in 1957 with the 'LMMU-1'.

The LMMU-1's high maneuverability outperformed those of shuttles and it also had the potential for precision work by attaching manipulators.

The optional attachment of walking legs allowed it to adapt to low-g environments such as on the lunar surface, and the LMMU-1 achieved an operability that felt largely the same as extravehicular activity when wearing a spacesuit, under any kind of environment.

A New Weapon

After the Sacrobosco Incident in 1967, a completely new and unknown kind of war broke out for mankind: The Lunar War.

At the time, the 'Space Development Treaty', formally known as the 'Treaty on Principles Governing the Activities of States in the Exploration, Development and Utilization of Outer Space, including the Moon and Other Celestial Bodies', forbade militarization on the lunar surface. Only small arms for security purposes were available at bases.

The UN, which held supreme authority over lunar development, hastily modified man-portable heavy weapons for use in vacuum/low-G environments. They then sent them to the lunar surface for them to be mounted on preexisting lunar vehicles and MMUs, while assembling personnel that had receiving training for or had gained experience in low gravity missions. With these preparations, the UN-led anti-BETA combat would commence.

At the same time, basic research was being conducted in secret by several countries, but none could immediately develop an omnipotent weapon able to respond to all of the Moon's problems, like the low gravity, the temperature differences, the vacuum conditions, and the regolith. Each time a supposedly effective prototype was sent to the Moon, problems would occur.

The weapon that finally changed this situation was mankind's first FP Weapon (Feedback Protector), the 'Hardiman', deployed in 1970.

Since large armored vehicles were unable to be deployed to the Moon due to loading capacity issues with mass drivers and HSSTs, FPs were seen a versatile alternative. Like armored vehicles, FPs could use heavy firearms, but by conducting bombardments with three-dimensional movement, they could draw out maximum effect with fewer rounds.

Although unable to reverse the situation on the Moon, the success of the Hardiman became the first achievement of anti-BETA space weapons development. This would later encourage the conceptual weapon development program 'NCAF-X', which adopted large MMUs into 0-1G environment weapons.

In regards to the combat appropriation of the large MMU, the prototype, which used the third generation MMU as a base, was given the code name (NCAF-X1). McDaell, the leader of the program, would then continue developments for the weaponized MMU.

The craft needed to be enlarged, so that it could wield large weapons capable of opposing the BETA, and so that it could also reach an output that would be adequate for conducting close quarters combat. However, this led to problems regarding the airframe's higher weight and lower maneuverability.

Many simulations were repeated to resolve this dilemma, and the final design that was chosen had the craft's height at 18m.

James Krantz, chief design engineer at McDaell, was faced with a mountain of problems. How will the craft maintain bipedal motion? How can it withstand the recoil of powerful firearms? How can it reach the same levels of mobility needed for the effective three-dimensional movement demonstrated by the Hardiman? And how can it sustain operability, even in the harsh conditions of the battlefield?

In reaction to all of this, he is quoted as saying, "God had created us petty humans in His great image, yet we humans are trying to create a great titan, in our petty image."

Thus began days of turmoil for the engineers.

Recreating human movement with a machine would require a huge amount of components, and as more parts were added, its weight increased, and so too did the chance of malfunctioning.

And of course, machines would always be subject to wear and exhaustion.

Problems frequently arose that could not be solved with mechanical engineering, and the program became deadlocked.

However, what gave these engineers hope were technology well-removed from armament development - prosthetics.

In the military, the development of prosthetic limbs for the wounded had been making steady progress.

It is widely accepted that the better prosthetics are those which seem to meld more with the body, rather than feel separate.

Because of this, organic tissues using biotechnology, and nanofiber technology that could contract and move the prosthetic limb in place of muscle had both been extensively developed.

This technology was integrated into the NCAF-X1.

In short, rather than making the machine larger and having it imitate hands and feet, the reverse was beginning to be developed—making something imitating hands and feet, but larger.

Driving the craft through joints, motors, or hydraulics was avoided as much as possible, rather, it opted for movement using electromagnetic, stretchable carbon bands (carbonic actuators), like when a person moves their body.

By placing articulated joints across the craft, it was given a wider range of movement than humans, while also solving the weight problem.

Exoskeletons adopted a method that traced and amplified human movement, but since the NCAF-X1 was much larger, there was a noticeable mismatch in sensation, so a tracing method from the control seat could not be used.

However, it was impossible to control the craft, with all of its moving parts, using only control sticks and pedals.

In order to resolve this, an interface used to detect nerve current and conduct indirect thought control was applied.

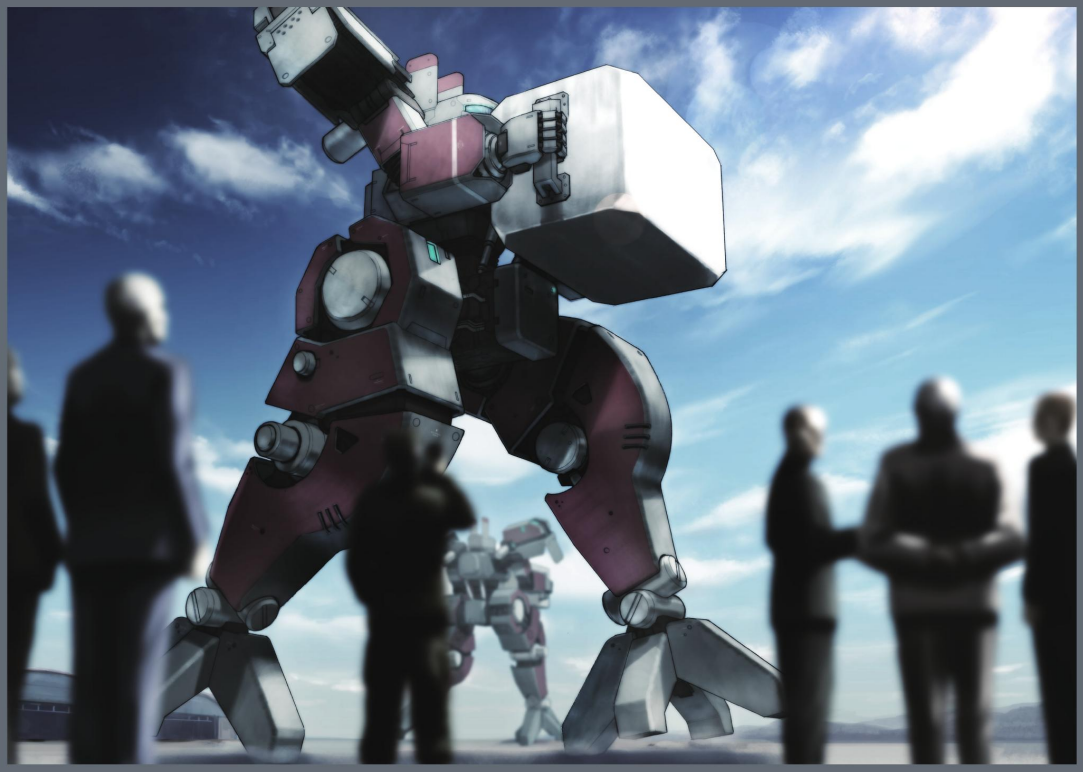
Prosthetic limb technology, specifically the BMI (Brain-Machine Interface), was also applied here.

Movement patterns could be selected with thoughts, and the selected movement could be confirmed with the sticks and pedals. It was now possible to create precise movements, even with an enlarged airframe.

By integrating nano and biotechnology that had been researched previously, the NCAF-X1 finally achieved bipedal movement. To allow movement on any terrain with precision, certainty, and speed, tests and adjustments were repeatedly performed.

"It was as if a giant, which had risen from an ancient grave, was gradually regaining its strength."

-David Myers, McDaell Corporation Design Engineer



From Exoskeletons to TSF: The Beginnings of Flight

At first glance, the NCAF-X1 seemed to be progressing steadily, but as the situation on the lunar surface began to deteriorate, it was forced to be converted into a plan for 1G environments, that is, for Earth. The new project, to adapt the NCAF-X1 to Earth, was named the 'NCSF-X'.

Many changes in specifications were made to the NCAF-X1, since it had been designed for zero to low gravity.

Its largest setback was retaining its maneuverability under gravity conditions six times those of the lunar surface.

On the lunar surface, a thrust level designed for attitude control was adequate. However, to conduct the same movements on Earth, a level of thrust to achieve independent flight was required.

This amount of thrust could be attained by using rocket engines, like those on the lunar surface, but with the main drawback of having enormous fuel consumption.

Even if components such as the space-environment passenger life support systems were removed, the additional fuel would still make the airframe too heavy, resulting in inadequate thrust.

A different engine had to be used, and an alternative was found in jet engines, which could be used on Earth.

Jet engines are internal combustion engines, meaning that air from outside is mixed in with its fuel while being burned, yielding the benefit of far less fuel consumption than a rocket engine.

However, compared to rocket engines, which gained immediate propulsive force from combustion by chemical reactions, a jet engine needed to spin its turbines to suck in air before heating up. This led to the problem of time lag between the engine at rest, and the maximum output.

The prospect of a hybrid engine was explored, using both types of technology, but there were limitations of space when attempting to mount multiple engines, and it was difficult to conduct fine changes in thrust. However, a proposal made by General Electronics, the FE79 engine, would overcome these problems.

The main feature of this engine was that it contained the mechanisms of both jet and rocket engines inside a single unit. When instant movement was required, the rocket engine could be ignited, and while accelerating, the jet engine could be ignited at high pressure.

Once it reaches the stage where thrust can be sufficiently gained with the jet engine alone, the rocket engine is stopped. This process allows for greater acceleration and fuel efficiency.

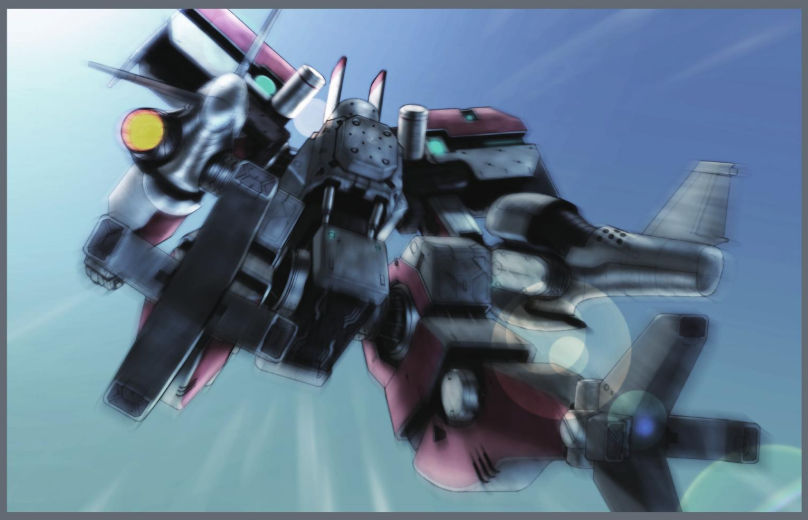
Furthermore, by adopting the monocrystal tech gained from experimental research during space development, the engine can reach a higher pressure and temperature, allowing for thrust far beyond that of existing engines.

And with the addition of vectoring nozzles for mobility control, all of the requests made for the NCSF-X had been fulfilled.

Afterwards, the NCSF-X commenced trials with a jump unit containing the FE-79, but it was not necessarily easy to wield such a high output unit.

The jump unit's ability to suddenly increase its output put a huge amount of strain on the prototype. Sometimes, the airframe could not withstand the thrust, resulting in either the jump unit falling off, or the airframe suffering damage.

After repeated strength simulations, the jump unit was attached to the prototype for grounded trials to test the craft's durability. During these tests, the output of the jump unit was successively increased.



This would continue alongside damage inspection methods, such as with ultrasonic waves, which are able to detect damage not visible to the naked eye.

If damage was found, methods for improvement would be investigated for later consideration.

This work was persistently repeated.

The actual jump trials of the NCSF-X were conducted on Trial Craft 6.

After unmanned jump trials in a prototype using wireless guidance were successful, a manned flight trial was conducted with test pilot Lieutenant Colonel Paul Johns.

Lieutenant Colonel Johns had received degrees in mechanical and aeronautical engineering before joining the air force as a pilot. The one and only goal of such a man was "to reach the Moon".

He would eventually become an astronaut and an LMMU operator, before serving in missions on lunar bases.

Johns boarded the NCSF-X, passed the grounded engine tests of the jump units, then commenced flight.

With ground personnel monitoring telemetry data, he performed repeated low altitude flights, incrementally raising the altitude each time.

Eventually, the tense jump trial ended after half an hour. Johns climbed down from his control seat on the NCSF-X, and though weary with fatigue, he smiled and said, "This is what we'll need to drive those monsters out and return to the Moon."

In successive trials, it was proven that the NCSF-X had superb flight capabilities and maneuverability.

The military passed judgment that it would be possible to deploy the NCSF-X in future combat against the BETA. They not only approved continued development of the program, but also programs for mass production.

Following this, the name 'Tactical Surface Fighter', meaning a tactical walking combat craft, was born, and the NCSF-X had its model number revised to YSF4H-1.



TSF Armaments

The TSF, the armor of titans, was on the verge of completion. However, one cannot fight with armor alone.

A sword is a necessity.

Having been originally developed from large MMUs, the TSF was designed on the premise that its armaments could be swapped out based on the circumstances.

As a result, development of weapons progressed alongside TSF development, and was focused on making weapons that could be secured by the main arms.

In order to fight against large BETA, firepower akin to tank cannons was required, but if a tank cannon was directly transferred to the TSF, the craft would not be able to keep its balance, due to the recoil, and the main arms would not be able to withstand the shock of firing. Cost issues also arose when considering missiles as the main weapon.

What gained particular attention was the recoilless rifle. Recoil is a natural result of Newton's third law of motion.

If firing the shell constitutes an action that creates a force, an equal amount of force is exerted against the discharge as the reaction.

Recoilless rifles simultaneously fire the shell and release high pressure gas or metal stops to reduce recoil.

Although recoilless rifles have the merit of being able to fire with short barrels, they face the problem of low initial velocity.

To combat this, rocket rounds, called RAP (Rocket-Assisted Projectile), are often adopted.

After being launched from the rifle, they maintain their armor piercing potential by propelling themselves with a rocket mounted on the shell.

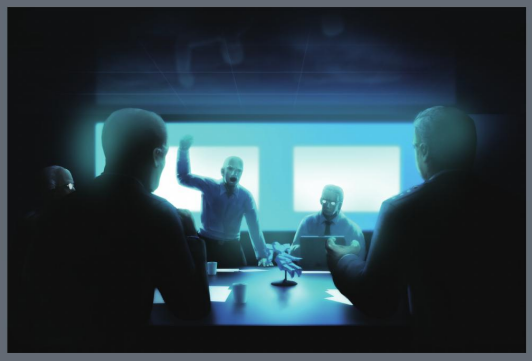
Combating the BETA required not only raw firepower, but also a countermeasure to their numbers.

Although large caliber cannons possess significant firepower, they are limited in the amount of rounds they can hold.

As a result, small strains of BETA are expected to be dealt with using small caliber autocannons, with many rounds loaded. This resulted in the beginnings of developments for a cannon that combined a large caliber recoilless rifle with a small caliber autocannon.

105mm and 20mm were the respective calibers adopted for the smoothbore cannon and the autocannon, and the TSF-use assault cannon WS-16A was born.

At the same time, close combat weapons including the CIWS-1 short blade and the longer CIWS-2 were also adopted.



Adoption and Licensed Production of the F-4 Phantom

In 1972, the US government disclosed information regarding the YSF4H-1 to its Western Bloc allies. The conceptual weapon had strong firepower, as well as mobility and flight capabilities from its jump unit. These factors made a significant impact on military officials around the world, with many countries immediately placing orders for it, in light of the deteriorating situation on the Moon.

However, the world's desire for the TSF only ignited in the truest sense in 1973, specifically, two weeks after the BETA landing unit settled in Kashgar.

The US Space Command had been tasked with monitoring the combat situation on the surface, which had been progressing well. Navigators, deployed to a low orbit shuttle, then noticed that the entire Chinese Air Force vanished from radar simultaneously. It is said that they initially thought that there was a malfunction in their equipment.

But it was no radar malfunction, rather, air power deployed to the combat zone had truly been destroyed in an instant. This was the appearance of the Laser class BETA.

As the US government grasped the situation, they began discussing countermeasures with the YSF4-H development team, while the US military leadership placed a manic order with them, and pressured them for deployment as soon as possible.

Over the course of a single night, the YSF4H-1 became sought after not only as a suppressive surface weapon to face the laser attacks, but also as a substitute air weapon, after humanity had been robbed of air superiority.

Despite the Sino-Soviet force's efforts with a scorched-earth strategy using nuclear weapons, the momentum of the BETA invasion did not slow down, and on July 6, 1974, a second landing unit settled in the Canadian region of Saskatchewan, Athabasca.

Although it was narrowly destroyed, with the focused use of strategic nuclear weapons, half of Canada became uninhabitable. From that day, more and more pressure mounted for the deployment of the new weapon as soon as possible, from both within and outside of the US.

However, there was little data on the BETA themselves, and with almost no information about hives either, most simulations conducted on anti-BETA warfare were just armchair theories.

With the assumption that points of improvement not making it onto the initial mass production craft would later be fixed through refurbishments, and that it would be given adequate design space for this to be viable, it was decided that the mass production lines for the craft would be brought into operation.

On the same year, in 1974, the F-4 Phantom mass production Craft 1 rolled out, and was deployed onto the frontline as the first TSF in history.

The TSF could be deployed on any terrain, through the combined use of bipedal walking and its jump unit. It was able to fill the gap left by the loss of air power to the Laser class, and with its varied armament selection, made possible through its main arms and armament mounts, it instantly became the mainline weapon against the BETA.

Having become an irreplaceable weapon, various countries rushed to order it. This resulted in a situation where the orders could not be filled by American production lines alone.

Several countries even began to distrust the US, which they believed were monopolizing the craft.

In response, the US government quickly decided to allow licensed productions of the F-4 Phantom.

Under the anti-BETA defense policy of the US, they were forced to prioritize the supply of craft to Europe, which was suffering worsening conditions. Therefore, when considering the supplying of craft to other regions suffering a BETA invasion, the securing of production lines in Europe and Asia was a necessity.

Since the F-4 was the culmination of some of America's best technology, allowing licensed productions came with the unavoidable risk of leaking confidential information. However, the Eurasian continent was in such a poor state that there was no other option. This desperation could be seen in allowing the Soviet Union and China, America's Cold War enemies, to develop licensed productions.

A New Generation of TSF

Mankind successfully infiltrated a hive for the first time in 1978's Operation Palaiologos.

It was here that primary data of a hive's stab was first gathered, through first-hand observations. This data, the Volk Data, was essential for future training drills and TSF development, but was gained with the sacrifice of Volk Regiment, which had been lost only hours after infiltrating the hive.

This also acted as proof that even more abilities were needed of TSFs.

Once work to refurbish the F-4 had settled down, McDaell's development team immediately launched research on the development of a new TSF. Several other aerospace companies followed suit.

Furthermore, countries that had absorbed TSF development techniques through licensed productions had been developing their own improved craft tailored to the requests of their front lines.

Combat data revealed the truth that armor alone was ineffective against BETA. The BETA strain that had destroyed the largest amount of TSFs was the Tank class. Their tough jaws could bite through the armor of a TSF, eating not only the craft, but also the Surface Pilot whole.

However, this result only considers what had dealt the final blow to the craft. What cannot be ignored are the circumstances as to how this situation of a Tank class latching onto a craft had occurred in the first place.

One such situation involves being hit directly hit by a laser. If a craft is hit directly by a laser attack, it will vaporize without leaving a trace. However, if the craft's legs or jump unit suffer a hit, it will be unable to escape from the battlefield. Similar cases occur when being attacked by Destroyer or Grappler classes.

In short, having a BETA's hit connect risks immediate defeat. This led to the conclusion that improving maneuverability, even if it meant sacrificing defense, would be the most effective means of increasing survival rates.

In order to increase mobility, the engine's output was the first target of improvements, but lowering the weight of the airframe was conducted simultaneously.

The armor of the top half was prioritized, since it housed important components such as the cockpit and sensors, while being prone to laser attacks, whereas the armor on the lower half was reduced.

With a top-heavy center of gravity, the craft's stationary stability was reduced, allowing it to secure a higher initial movement speed, and making it more responsive to inputs overall.

However, with less stability, there was more risk of falling over. It was clear that computing capabilities needed to be improved for craft control, and OBW technology was needed as a means of assisting in maneuvering the craft.

OBW could assist in TSF control by transforming control stick and pedal inputs from the Surface Pilot into electrical signals, allowing for computer corrections to be made to all movements. This technology was a large turning point for future TSF development, since overall maneuverability of the craft could be improved by merely modifying the software, like the operating system.

Additionally, various sensors were also improved, after it was found that Laser classes produced low output preliminary irradiation immediately before firing. These improvements were based off research data showing that prediction-based evasion would be possible if the position of the Laser classes in a combat zone could be ascertained, after detecting preliminary irradiation.

The craft that developed from these technical concepts would be called 2nd-generation TSFs, and this firmly entrenched the position of TSFs in humanity's arsenal.

3rd Generation and Beyond

Theories and direction surrounding the 2nd-generation TSFs, which had proven their effectiveness, would make further progress in the 3rd generation.

Though OBW was a revolutionary technology during the 2nd Generation, and was practical for several decades, by the 3rd generation, it was supplanted by OBL (Operation By Light).

By merely replacing the wires in OBW with optical cables, far more data could be transmitted, allowing for even finer control of the craft by the computer.

Meanwhile, optic cables excelled in fire resistance, were strong against electromagnetic interference, and could maintain stable performance under harsh combat conditions.

Additionally, composite armor allowed for even more weight reductions, and the application of an anti-laser vaporization film as well as heat-resistant armor significantly reduced the risk of being immediately taken down by a single hit.

With developments into operating systems and avionics to adapt to improved mobility and maneuverability, as well as airframe control using aerodynamic characteristics, TSF development had clearly made progress since the 2nd generation.

However, what has become the most important feature of 3rd-generation TSFs are the advancements in C4I2 (Command, Control, Communication, Computer, Information, Interoperability), as represented by the tactical data link.

This system integrates information gathered by several craft in real time, such as enemy and friendly positions and status, making it easy to grasp the combat situation.

This allowed for more precise strategic actions that dramatically increased combat effectiveness, such as covering blind spots of allies and quickly intercepting unexpected enemies.

This was technology that would be indispensable for future TSFs.

Regarding the fourth generation and beyond, nations are still unsure of the direction to head in.

As always, even higher mobility is being sought after. However, there is no certainty over which of the other, less obvious fields are worthy enough to pursue.

Unmanned TSFs, which operate by AI control, are not predicted to ever be advanced enough to respond to constantly changing battle conditions, and super large craft such as the XG-70d, which are capable of capturing a hive alone, require both the ML Drive and 00 Unit (specifically, the quantum conductive calculating device).

Despite the many possibilities currently open to the world's nations, none have managed to even select a direction to take.

Global TSF Development

America's TSF

As a new and conceptual weapon, America's TSF was the target of much envy from nations across the world. However, as the F-4 Phantom was brimming with the cutting-edge technology of the time, it had a significant procurement cost, and was not suited to mass production. This led to a situation where it was difficult for nations to import the numbers they were after.

In the US, a development program for a cheaper, export-oriented TSF was launched, based on the technology gained from the F-4 Phantom's development.

In this program, Northrock was asked to prioritize low costs and high production potential. To meet this request, they performed minimal modifications to the T-38 Talon, which had already reached advance mass production stages as a craft used for the conversion training of air force pilots. This development was formally adopted as the F-5 Freedom Fighter, and would be exported mainly to Europe, with permissions granted for licensing.

Meanwhile, the McDaell and Doglam corporations merged to form McDaell Doglam. They then undertook the development of a new TSF that would surpass the F-4 Phantom.

This craft, the F-15 Eagle, was developed based on the F-4 Phantom's development experiences and from combat data gathered worldwide, and would come to be hailed as a masterpiece.

The F-15 Eagle established the technology and theory behind 2nd-generation craft, and much like the F-4 Phantom, it was exported worldwide, with permissions for production under license being granted.

However, it also retained the sole problem of the F-4 Phantom—difficulties with high costs.

As the US faced cost related problems in meeting even its domestic planned procurement numbers of the F-15, the High-Low-Mix Initiative was brought up as a solution.

By deploying cheaper craft along with high-cost, high-performance ones, they could compensate for the lack of numbers.

As a result, one research and development program, the LWTSF (Light Weight Tactical Surface Fighter), was singled out, leading to the production of the F-16 Fighting Falcon by General Dynomics.

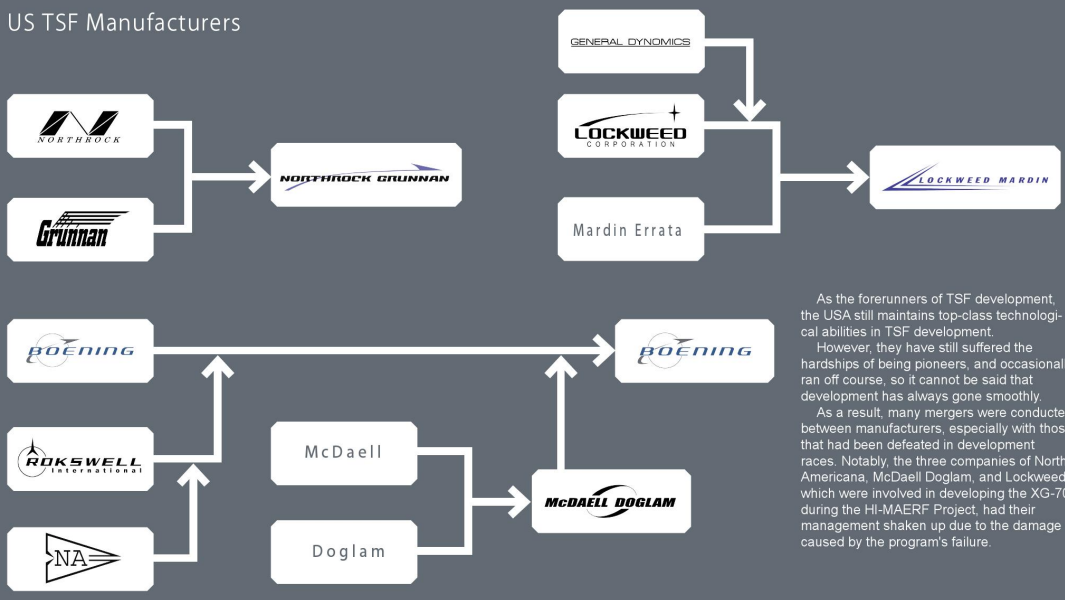
However, with the development of the G-Bomb, the TSF development paradigm in America shifted.

This was due to the adoption of a doctrine, which stated that G-Bombs would be used to destroy the hive, removing the need for infiltrations using large forces.

Hive infiltration with TSFs was seen only as a secondary priority, with the top priority being the elimination of BETA on the surface. Furthermore, designs involving extermination by bombardments at range rather than close quarters combat had become mainstream.

Instilled with confidence over their plans that the G-Bomb would end the Great BETA War, the US anticipated unstable global affairs after the war, and commenced development of a craft with anti-TSF combat potential. This led to the development of the F-22 Raptor by Lockweed.

US TSF Manufacturers



As the forerunners of TSF development, the USA still maintains top-class technological abilities in TSF development.

However, they have still suffered the hardships of being pioneers, and occasionally ran off course, so it cannot be said that development has always gone smoothly.

As a result, many mergers were conducted between manufacturers, especially with those that had been defeated in development races. Notably, the three companies of North Americana, McDaell Doglam, and Lockweed, which were involved in developing the XG-70 during the HI-MAERF Project, had their management shaken up due to the damage caused by the program's failure.

Empire of Japan

Imperial Japan deployed the licensed production of the F-4 Phantom, the Type 77 F-4J Gekishin.

The three companies involved in the licensed production were Fugaku Heavy Industries, Mitsuhishi Heavy Industries, and Kawazaki Heavy Industries. With their accumulated technology, they also succeeded in developing a strengthened refurbishment, as the Type 82 F-4J Kai Zuikaku.

However, the Ministry of Defense was worried that their armament procurement was essentially controlled by the US, and commenced the Youkou Program to develop a purely domestic TSF.

Due to their reliability and accumulated technological advancements, Fugaku, Mitsuhishi, and Kawazaki would continue their collaborative efforts in this program. However, development was difficult as the desired performance specifications were beyond the standard of 2nd-generation craft.

In order to resolve this, F-15 trial craft were imported, under the guise that more would be ordered if they proved successful and popular.

This breakthrough helped accelerate the development of a purely domestic craft, the Type 94 Shiranui.

Meanwhile, the Shogunate, which controlled the Royal guard, was making progress in selecting a TSF to replace the Zuikaku.

Based on the results of the Shiranui's demonstrative trials, they decided that the Royal Guard craft would also be developed domestically. However, Fugaku, Mitsuhishi, and Kawazaki, which were relied upon in the past, did not have any spare time or resources to work on anything other than the Youkou Program. Of these three companies, only Fugaku was assigned to work on the Asuka Program for basic developments into the next mainline Royal Guard weapon. As the program was launched, Onda Technical Research Institute joined, since they had experience in developing TSF engines in the past.

Compromises were permitted in their maintainability, manufacturability, and maneuverability, allowing for the craft's performance to be pushed to the limits to meet the high required specifications.

The result of this program was the Type 00 Takemikazuchi.

With its ambitious designs, based on the Shiranui's development, to its individual components, the craft boasted a distinguished level of performance even among 3rd-generation craft, prompting many to call for its adoption by the IJF, rather than just the Royal Guard. However, with its problems in regards to cost, mass production, and maintainability, these hopes were quickly dashed.

Japanese TSF Manufacturers



Soviet Union

The Soviet Union commenced combat deployment of TSFs with their licensed production of the F-4R. After more improvements, it would be given the official designation of MiG-21 Balalaika, but it was still viewed as a licensed production of the F-4 Phantom.

The Soviet leadership attempted to resolve the F-4R's underwhelming dogfighting abilities, as well as its low mass production potential, by having the Sufoni Design Bureau develop the purely domestic Su-11. Although it was based on the F-5, the Su-11 boasted no improvements over the original, and despite being given an official designation, it never reached mass production.

Although the Su-15, the successor to the Su-11, managed to meet the required specifications, it was defeated by the MiG-23 Cheburashka, which was its competitor during mass production trial stages. Eventually, the Su-15 met the same fate as the Su-11.

And so, Mikoyam Guluvich's MiG-23 Cheburashka became the first of the Soviet Union's purely domestically produced TSFs. The 2nd-generation TSF MiG-25 Spirt-Voz, based on the F-15 Eagle, would be adopted after it.

After repeated defeats in development races, Sufoni began to collaborate in secret with Grunnan, which had been left in the shadow of their rival, McDaell.

Grunnan greatly contributed to TSF development with various achievements like the X-29, a 3rd-generation technology demonstration craft they had developed themselves. However, their formally adopted craft stopped at the F-11 Tiger and F-14 Tomcat, and they were unable to secure the position as a mainline TSF developer.

Unable to recover profits through mass production, they entered a management crisis situation and were forced to consider a merger with Northrock.

Sufoni then exchanged their own technological data, Soviet combat data, and a significant sum of money for Grunnan's technical data on craft such as the F-14 Tomcat and X-29. After Grunnan merged with Northrock, Sufoni were even successful in obtaining data regarding Northrock's F-18 Hornet.

With all of this information, Sufoni completed the large, yet maneuverable Su-27 Zhuravlik, and was able to have it become their first mainline craft of the Soviet Armed Forces.

As the Su-27M2 Zhuravlik became formally adopted as the Su-37 Terminator, the procurement numbers for the Su-27 dropped significantly below initial expectations. However, with the introduction of the Su-47 Berkut, which eclipses the Su-37 (a craft already renowned as one of the best close quarters TSFs), and with further tests still being conducted, Sufoni firmly secures its position as a bureau responsible for mainline TSFs.

On the other hand, Mikoyam Guluvich prototyped a 3rd-generation TSF called Project 1.42/1.44, which was the equivalent of the US ATSF Program, and also continued upgrading the MiG-29 Lastochka and MiG-31 Plamya-Lisa. However, no information about these craft are known—not even whether or not they will be formally adopted.

Soviet Union TSF Manufacturers

МиГ

SUFONI

Under a communist regime, there are no 'private companies' as would be expected in a capitalist country. Rather, the following organizations are actually considered design bureaus of the government.

EU

Europe consists of a large number of small nations, which limits the defense budget possessed by each.

Furthermore, being the front-most line, there was an urgent need to deploy as many TSFs as possible. Therefore, cost and mass production potential were seen as vital factors.

As a result, the F-5 Freedom Fighter was singled out as a TSF that was cheaper and more suited for mass production than the F-4 Phantom, and several countries began to import it.

Many licensed productions of the F-5 were developed in Europe simultaneously. Palavia manufactured the English, West German, and Italian collaborative licensed production craft F-5E/G/I Tornado. In France, Dass-Ault deployed the Mirage III (F-5F). And in Sweden, SAAG deployed the J-35 Draken (F-5S). These five craft are commonly referred to as the 'Five Sisters'.

Following this, Europe's NATO member states commenced the ECTSF (European Combat Tactical Surface Fighter) Program as a collaborative development for a new TSF.

However, the program faced repeated delays, resulting in successive withdrawals from the program by participating countries.

By the end, the UK had practically become the sole developer nation, and the program was converted to a 3rd-generation standard craft, which focused on close quarters dogfighting capabilities. This craft would be completed as the EF-2000 Typhoon, and was mass produced by Euro Fightas, a multinational company established with the funds from all contributing countries.

European TSF Manufacturers

Palavia — GB D I

Euro Fightas — GB D I E

SAAG — S

DASSAULT — F

Israel

While other Middle Eastern countries relied almost entirely on imports, Israel chose its own path.

IEI remodified the French Mirage III (F-5F) to make it suited for desert combat.

It was formally adopted by the Israeli Military as the Kfir (F-5F).

Following this, they adopted the F-15 Eagle and F-16 Fighting Falcon, but when seeking higher close quarters combat capabilities, they commenced development of the Lavi, with support from the US, hoping to make it an F-16 variant with greater close quarters dogfighting abilities.

However, development support was halted as the US development paradigm switched to G-Bomb support, forcing Israel to suspend the program. However, Israel was approached by the Third United Front, which was looking to develop their own TSF, leading to the collaborative development of both the Lavi and the Jian-10.

Israeli TSF Manufacturers

IEI

Third United Front

The PRC Armed Forces was the first to suffer significant losses from combat with the BETA.

The loss of their territory, as well as the formation of the TUF has led to the situation where they operate TSFs that have their roots in several other nations.

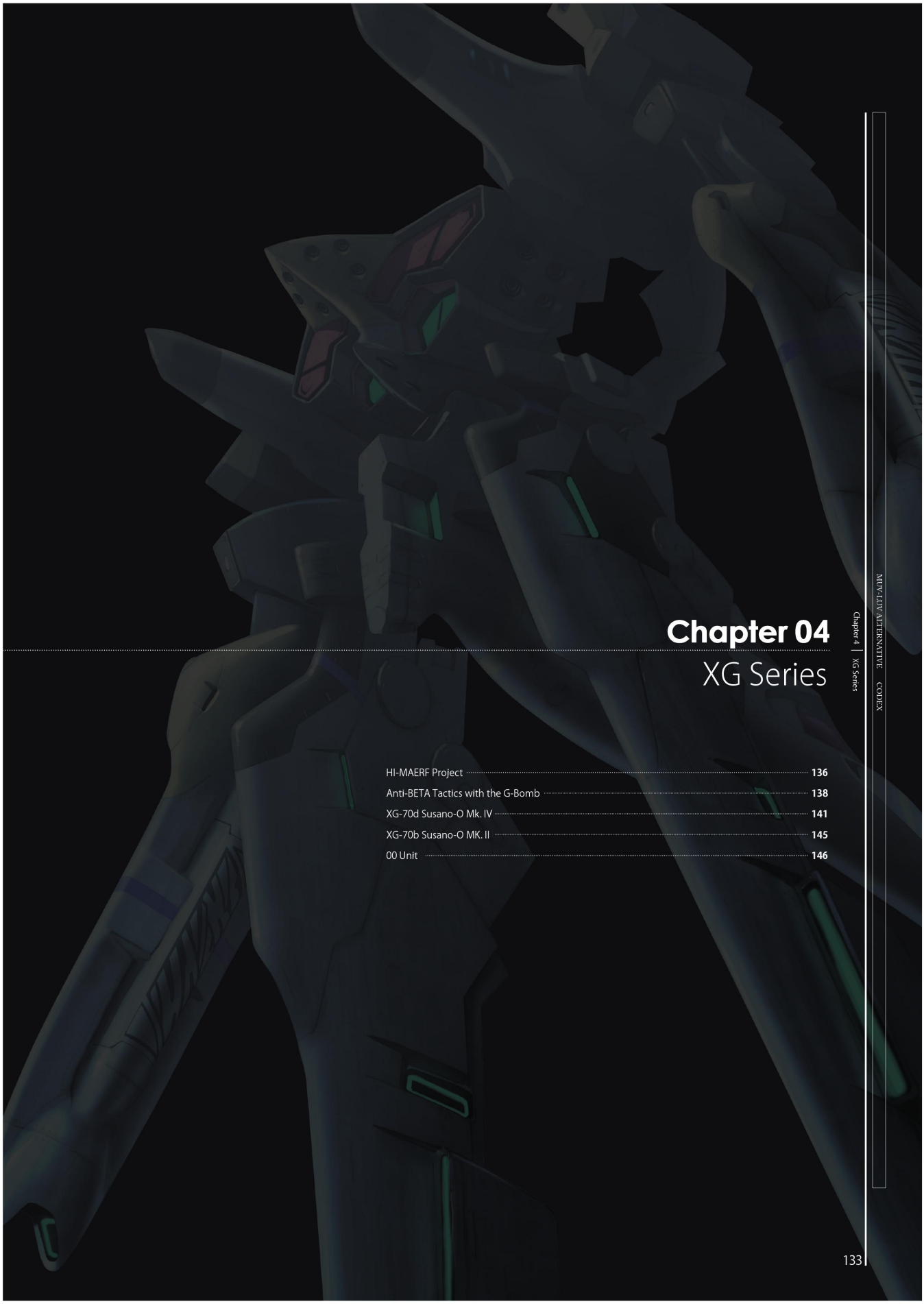
They conduct flexible development of craft, paying no heed to Eastern or Western Bloc allegiance, having developed the Jian-8 in response to America's F-4 Phantom, the Jian-10 in response to Israel's Lavi, and the Jian-11 in response to the Soviet's Su-27 Zhuravlik.

TUF TSF Manufacturers

Shengyang

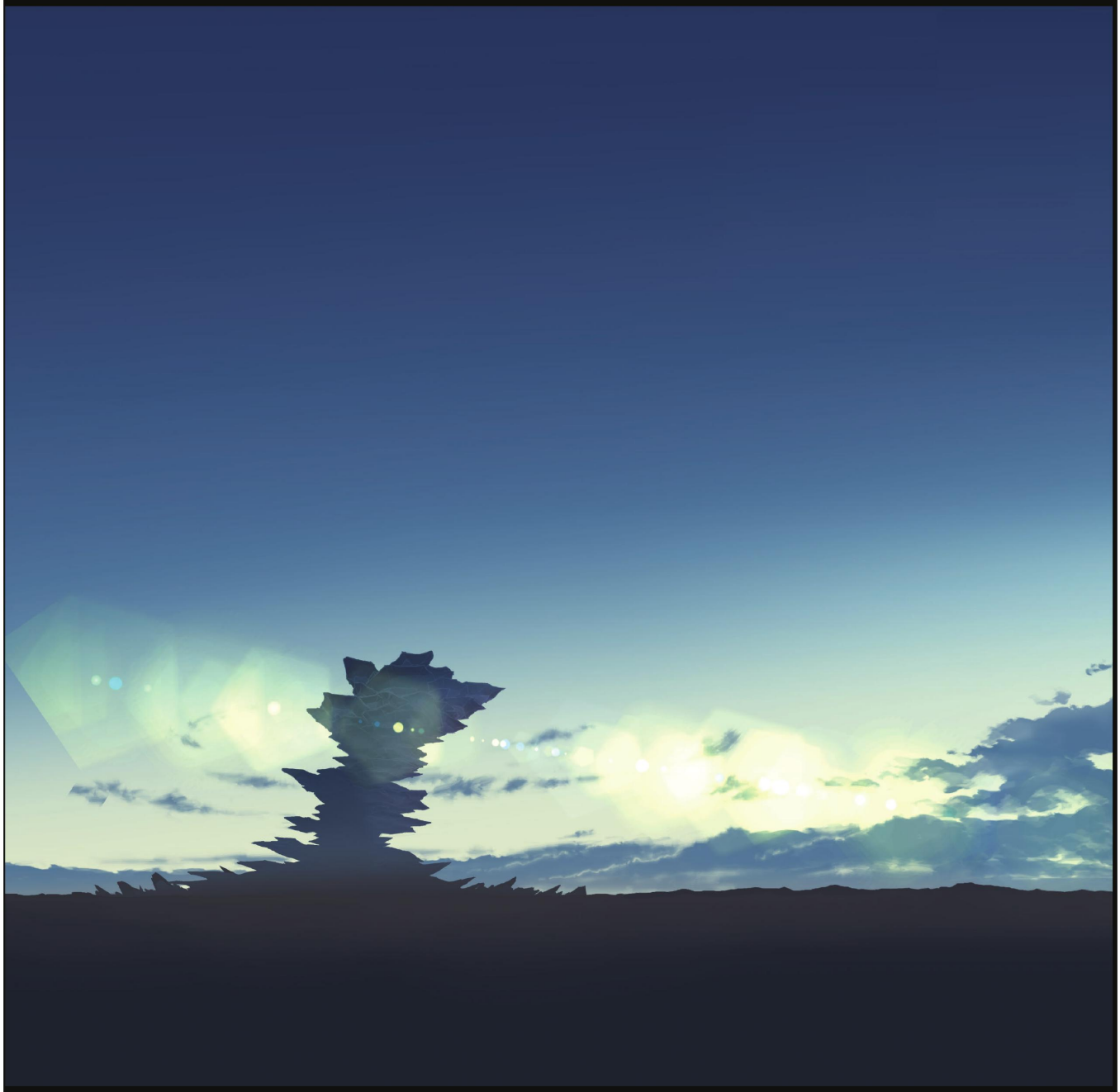
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Illustrated by 三石無双
Sangoku Musou

G-Element Weapons

Strategic Aeronautic Fortress XG-70 and The G-Bomb

This section will outline the characteristics and history of the Strategic Aeronautic Fortress XG-70 Series, which were derived from G-elements, and the G-Bomb, which is pivotal to America's unique anti-BETA strategy.

[HI-MAERF project , Santa Fe project]



In 1974, the US government launched the 'Sine Project', after the discovery of G-elements. In July of the same year, they investigated the destroyed BETA landing unit (destroyed by the US Military with the focused use of strategic nuclear weapons) that had settled in Athabasca, Canada, in order to research the BETA's advanced technology (★ 1).

The damage to the landing unit was extreme, reflecting the severity of the nuclear firepower used against it.

This led to the belief that investigations into the BETA ecosystem and the landing unit would end without significant results. However, a crystal formation was found in the depths of the unit, made of an element that had not yet been discovered by mankind.

All discovered items were immediately sent to the Los Alamos National Laboratory in New Mexico, where a team led by Professor William Gray started to closely examine these elements of BETA origin.

Professor Gray's matter analysis went unexpectedly smoothly, and he repeatedly succeeded in isolating the new 'Gray Elements' (G-elements), which would be named after him.

These elements were numbered in the order they were isolated, and were given provisional names such as 'Gray Six' (Gr.6) and 'Gray Nine' (Gr.9).

The Sine Program had also discovered several characteristics of G-elements, such as Gray Nine's high-temperature superconductivity, and Gray Eleven's anti-gravity reaction. However, even as of now, the internal structures or the reasons behind these characteristics have not been determined.

The isolated element crystal of Gray Six was lost in an accident with unknown causes and has not been rediscovered since.

Investigations of the accident led to speculation that Gray Six is an exotic matter with negative mass.

HI-MAERF Project

In 1975, Professor Karls Moorcock and Professor Ristomatti Lechte proposed a theory of gravity control based on the anti-gravity reaction discovered in Gray Eleven, which would later be called the 'Moorcock-Lechte Theory'. This theory led to the possibilities of anti-laser defense by using a gravity field, and the use of an anti-gravity drive that could generate electrical power from the significant amounts of leftover energy from gravity control.

A group that took interest in this theory was one from the Lunar War era that had been working from within the Pentagon to develop a decisive weapon with extreme, destructive power.

During the Lunar War, mankind was forced to fight the BETA by sequentially deploying forces to the moon, as a result of the weak space transportation system at the time. This group was looking into the development of a superlarge space craft that would be able to independently suppress the BETA, in order to resolve the war with the BETA in one sweep.

It was a grand program for a craft of a massive size only possible due to the low-gravity environment, slated to operate with several nuclear reactors and even charged particle cannons. Unfortunately, the program became deadlocked in 1973 when the BETA invaded Earth and humanity abandoned the Lunar surface.

However, the team behind the program firmly believed that the new weapon, the 'TSF', which had been developed at the same time as their own weapon, would lead to a repeat of the Lunar War, as they believed the TSF only carried slightly more firepower than a Hardiman. So instead of abandoning the plan, they continued to look for an armament platform that would be able to carry their desired level of firepower on Earth.

When the pretense of deployment to a space environment had been lost, their fundamental concept of a weapon that operated on land, but could rival a battleship, was seen as absurd, but this changed with the discovery of G-elements in 1974.

Although they gave up on their original plan of using Gray Six since it was difficult to rediscover, the possibilities of an anti-gravity drive based on Gray Eleven and the Moorcock-Lechte Theory provided this dream with a means of power and movement.

In the same year, the US Department of Defense drafted the 'HI-MAERF' Program (Highly Maneuverable Aeronautic Fortress) for the WS-110A, which was an expansion on the previous large spacecraft program.

As the F-4 Phantom had only commenced combat deployment the year prior, Congress was initially reluctant towards the large-scale development based on technology that was still at theoretical levels. However, the problems with the operation of this 'new weapon' would end up supporting the approval of the HI-MAERF program.

At the beginning of their introduction, many Air Force pilots that had been transferred to TSF roles were killed in action, giving TSFs nicknames such as 'The Veteran Killer' and 'The Eight Minute Coffin'.

The HI-MAERF Project was backed by a distrust towards TSF, which were anti-BETA weapons based on preexisting technology. Congress narrowly approved funding of the HI-MAERF, which, in contrast, was based on unknown technology.

Congress then assigned the project to three companies, Lockweed, North Americana, and McDaell Doglam to collaborate on developing both a hive capturing weapon, the 'XG-70', which utilized an anti-gravity drive with Gray Eleven, as well as the XF-108, a dedicated escort TSF.

Against the doubtful expectations of Congress, the project moved smoothly. In 1979, the critical test was completed for the anti-gravity drive based on the Moorcock-Lechte Theory, commonly known as the 'ML Drive'. The anti-gravity drive technology, which was the core of the XG-70, had been established.

(★ 1) Though the target area for recovery was Canadian territory, a North American treaty between the US and Canadian governments prior to the BETA landing allowed the US to monopolize the spoils in exchange for being solely responsible for the elimination of the landing unit.

(★ 2) As will be mentioned later, two G-Bombs were dropped on Yokohama. These greatly underperformed in terms of expected destructive power and resulted in many unexpected effects, most of which still remain unknown.



The twelve test pilots that took on the first flight of the XG-70b Prototype.

At the time, fortified suits had not been developed, and so these pilots were wearing US Armed Forces flight suits.

Santa Fe Project

In 1979, when the ML Drive's critical tests had succeeded, a document titled 'The Memorandum on ML Theory-Based Strategic Weapons of Mass Destruction' was submitted in top secret to the President at the time, Harry O'Laughlin, by exiled German scientists taking part in the HI-MAERF Project at Los Alamos.

This document proposed an alternative use of the ML Drive, not as a highly controlled reactor, but as a less complex, super-critical reactor weapon - a fifth-dimensional effect bomb, which would later be known as the 'G-Bomb'.

The reason as to why this proposal was made remains unknown, since by 1979 the HI-MAERF Project was thought to be progressing smoothly.

One credible possibility is that the HI-MAERF Project only appeared to be going well, and the exiled German scientists, who had foreseen the project's stagnation, submitted the proposal after panicking about the failure of the European counter offensive 'Operation Palaiologos' in 1978 and the subsequent fall of Germany. However, an alternate possibility is that they submitted the proposal after realizing the direct, destructive capacity of the ML Drive during a critical accident called the 'Little Boy Effect'.

Regardless, this proposal could be understood even by a layperson, due to its similarity to nuclear weapons (though in reality, it had far more technical difficulties than these). As a result, this project would be executed independently, separate to the HI-MAERF Project, as directed by an executive order.

The G-Bomb development program, named the 'Santa Fe Project', was not given to the private sector. Rather, it was developed in top secret under the command of the US Army, and was even kept as a secret from participants in the Sine Project and HI-MAERF Project (excluding the advocates for the Santa Fe Project).

Its secrecy was due to the expectation of the weapon being uninterceptable. If this technology was to have been leaked to other nations, it would have brought about another Cold War situation once the BETA were eliminated

The HI-MAERF Project Is Halted and the G-Bomb Appears

By the beginning of the 1980's, the HI-MAERF Project was beginning to stagnate.

The XG-70, a strategic aeronautic fortress, boasted high mobility through gravity control, anti-laser defense with the gravity field (Rutherford Field), and could wield a charged particle cannon with its surplus power, and had also reached production of the first prototype. But despite all of this, during the important, manned flight stage, an accident occurred where all twelve test pilots died.

This was found to be caused by the high mobility movement that would have been expected of actual combat. Specifically, interferences in the Rutherford Field caused a fatal gravity anomaly in the cockpit that could not be suppressed by the processing power of the craft.

In the following manned flights, it was found not to be completely safe even during standard movements.

Its conversion into an unmanned weapon was considered, but it was difficult to achieve a combat level of situational adaptation using the unmanned control technology at the time. Furthermore, it would be impossible to control the drive at a level that would maintain the combat output of the main weapon, the charged particle cannon.

On the other hand, in July 1987, the Santa Fe Project had succeeded in a controlled detonation of the G-Bomb during the 'Morpheus Test', which was conducted on a small scale at White Sands, New Mexico.

This possibility of the G-Bomb's practical realization was the nail in the coffin for the HI-MAERF Project, and by November of the same year, the Pentagon decided to halt the HI-MAERF, which had not made any progress over the past few years.

In order to shift the attention of the public and Congress away from what could be called a waste of funds and labor, they revealed the 'New Bomb' and caused a significant change in the anti-BETA strategy.

The US government would then propose the next-era Alternative Project, which would use the new bomb, to the UN the following year, in 1988.

Later on, it was deployed in combat during the Yokohama Hive (Target 22) capturing operation in 1999, proving its effectiveness. (★ 2)

Anti-BETA Tactics with the G-Bomb

The Effect of the G-Bomb

The principles behind the operation of the fifth-dimensional effect bomb, commonly called the G-Bomb, are still unknown.

In fact, all the Moorcock-Lechte Theory has accomplished is the creation of a method of anti-gravitational control using Gray Eleven, yet the theory is still unable to explain how this is possible. All that is known for sure is the destructive effect of the ML Drive, once it has had its criticality control removed.

Despite having 'bomb' in its name, the G-Bomb is fundamentally different to nuclear bombs or conventional explosives using charges. It is not a weapon that generates its destructive potential through the direct release of energy.

Firstly, after the criticality control is released, the gravitational anomaly of the Rutherford Field (the barrier created by the ML Drive's instant, supercritical reaction), continues to rapidly expand into a spherical shape until all of the Gray Eleven is used up in the reaction. At this point, any objects touching the wall become tidally deformed (spaghettification) and are destroyed.

Inside the barrier, a force assumed to be gravity is simultaneously exerted in all directions at a nano level (multilayered, randomized, directed gravity effect zone), and it tears apart all matter that has mass at the molecular and atomic levels.

This effect occurs uniformly and simultaneously within the entire affected field, and there is no difference in destructive power between the center of the reaction and its edges. Unlike conventional explosions, the G-Bomb ignores the concept of 'armor'.

It has been found that any mass left within the spherical tear of the G-Bomb's effect radius is reduced compared to what it was before the supercritical reaction.

Only a minimal amount of light and heat are released outside of the effect range, which cannot be compared to the total lost mass (★ 1). It remains unknown as to where this mass vanishes to.

Theories include the objects being folded into higher-order space outside of observation, or that Gray Six appears as an intermediary to nullify them, as well as absurd deductions that they are dispersed over imaginary space, or that they are transported to a parallel world. However, it is impossible to observe a G-Bomb's affected area during the reaction, so verifying any of these theories has proven difficult.

While conducting its supercritical reaction, the G-Bomb does not cause damage to areas even slightly outside the effect's range. However, because the loss of mass reduces the atmospheric pressure of the affected zone, when the reaction ends and the dimensional barrier vanishes, the surrounding mass, including the atmosphere, rushes back in and causes an inwards explosion.

Furthermore, when used above the ocean's surface, or on coastal areas, damage can be caused by things such as tsunamis, which are created from the displacement of the ocean's water.

Even after the critical reaction has finished, the space that had been the G-Bomb's effect zone is left with a slight gravity effect where it is disturbed in random directions, and which continues to affect matter inside the zone.

Data from follow-up research reveals that the germination rate of plants and the fertility of animals decrease, and both suffer from stunted growth. However, long-term effects on things such as the human body are still being researched, with observations coming from the only area exposed to a G-Bomb blast, Yokohama Base.

As outlined here, many points other than the direct destructive potential of the G-Bomb remain a mystery, including their principles of operation. A strong movement opposing their use exists, which protests the use of G-Bombs due to their long-lasting gravity anomaly as well as their unknown long-term effects.

Furthermore, on the G-Bomb's first combat deployment during Operation Lucifer at the Yokohama Hive, the effect radius greatly underperformed the expectations of the design, and the BETA outside of the affected area all simultaneously ceased activity before dying, for some unknown reason.

Though its lackluster radius brought the destructive power of the G-Bomb into question, the simultaneous deactivation of the BETA was an unexpected benefit, though neither of these phenomena were observed at all in the previous detonation trials. Ironically, this has become fodder for opposition groups to voice their concerns about how so little is known about the G-Bomb (However, these unexpected results have been marked as confidential, and most opposition groups do not know about them).

It is thought that the direct cause of these phenomena was due to having two G-Bombs detonated in rapid succession, a much shorter time period than initially planned. However, this has not been clarified and no one knows where the reaction energy, which should have been released by two G-Bombs, ever disappeared to.

The G-Bomb as a Weapon

The G-Bomb is a weapon that cannot be intercepted. By loading an appropriate amount of moderators, the G-Bomb acts as a controlled ML Drive, and before its supercritical state, it can deploy a Rutherford Field with its criticality controlled. Therefore, the G-Bomb is a sure-kill weapon that can't be intercepted by either BETA or man.

Electromagnetic waves, such as lasers, cannot breach the Rutherford Field's gravity anomaly in theory, and rounds that have mass are neutralized by the tidal deformation effect.

It is possible to damage a G-Bomb from outside of the Rutherford Field by using a close quarters explosion on the level a strategic nuclear weapon. However, this would be difficult to accomplish as it involves a massive nuclear explosion over the G-Bomb's flight path. Furthermore, it is predicted that destroying the warhead would only speed up the G-Bomb's detonation. This is because the G-Bomb is different to a nuclear weapon in that it is deployed in its critical state (a nuclear weapon only reaches its critical state upon detonation). So long as there is Gray Eleven remaining in the warhead, destroying it and the moderators it contains would result in an immediate supercritical Gray Eleven reaction.

The guaranteed method to break through a Rutherford Field requires an identical ML critical reaction zone. Essentially, the only thing that can currently intercept a G-Bomb with certainty is another G-Bomb.

As long as the G-Bomb is monopolized, it is an ultimate attack that cannot be intercepted in any way other than by being destroyed before launch. This is the reason the US is obsessed with both confidentiality and the monopolization of the G-elements, with which the bomb is made.

The US G-Bomb Strategy

Developed in 1991, the G-Bomb greatly overturned the fundamental strategy of the US, which up until then had conformed with the anti-BETA strategies of other nations such as the Soviet Union and China.

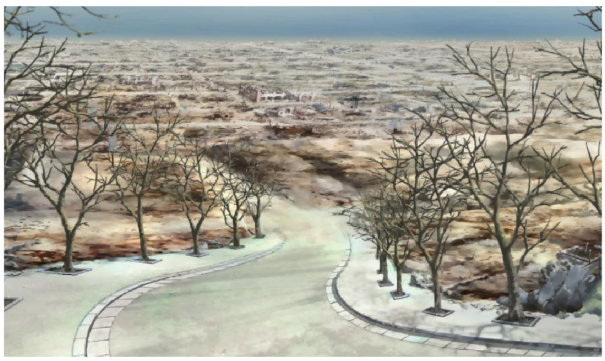
In response to the Eurasian nations' prioritization of reclaiming territory, the US proposed a strategy that would involve trapping BETA inside the Eurasian continent and deploying many G-Bombs to destroy the hives on the perimeter, before collecting G-elements from these hives to make more G-Bombs.

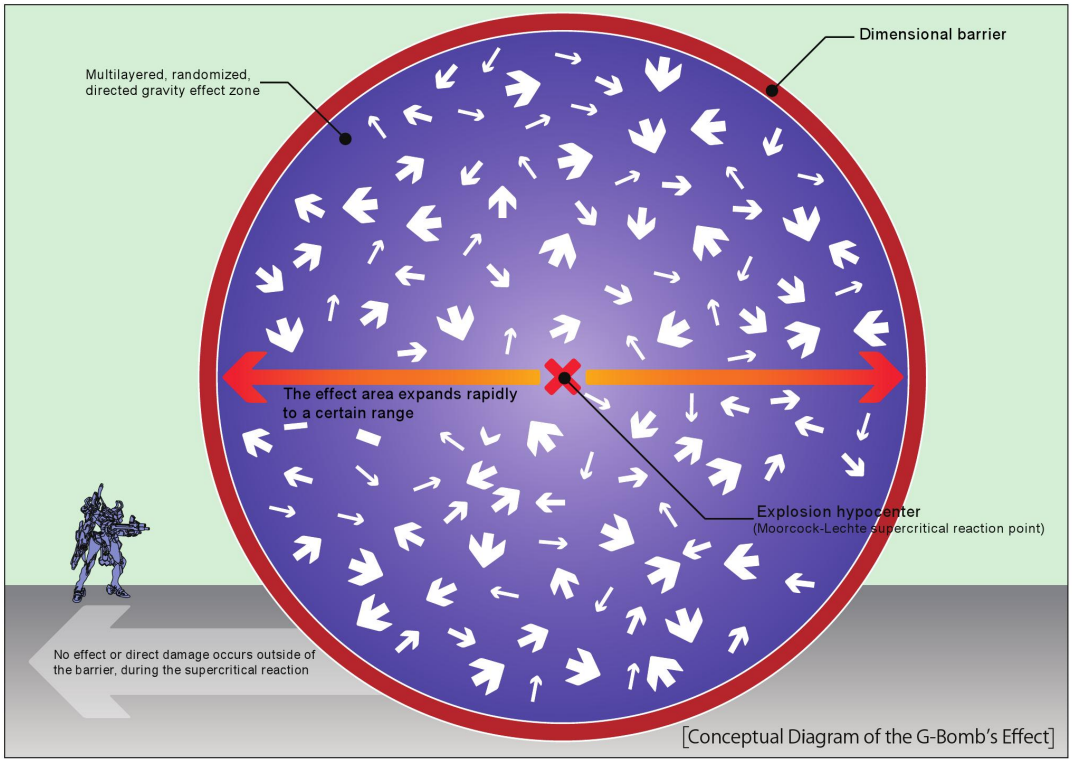
This was touted as the strategy that would end the Great BETA War in the shortest amount of time, and with the fewest losses. This strategy would later form the backbone of 'Operation Babylon' and its successor, Alternative 5.

This strategy did not call for traditional hive capturing operations, with the mobilization of large-scale military forces to infiltrate the hive's interior. Rather, it would involve simply eradicating the hive with the G-Bomb's tremendous power, and hence would not require any units to infiltrate the hive. In this sense, it is similar to ICBMs and nuclear weapons in the sense that when they first appeared, they were hailed as supreme weapons.



Hiiragi, Yokohama was reduced to ruins by the two G-Bombs deployed by the US military during Operation Lucifer. The row of cherry blossom trees on the hill to the front gate of the Surface Pilot Cadet Academy could not heal under the effects of the G-Bomb.





[Conceptual Diagram of the G-Bomb's Effect]

Anti-BETA Tactics with the G-Bomb

The G-Bomb is a weapon that can be used independently, without support of other weapons or personnel, except when being launched. However, as there are not enough of them to use against the BETA, which are spread widely across the land, G-Bombs are restricted for hive suppression only.

Furthermore, even with their Rutherford Field, they are not considered completely safe against multiple laser attacks, so it is ideal to eliminate as many Laser classes as possible within the G-Bomb's deployment zone.

Therefore, even with the G-Bomb, the BETA on the surface would need to be suppressed to ensure its deployment, and a method of securing the reactor and G-elements before other nations was necessary.

These tasks are left to tactical armored forces.

American hive capturing tactics are the same as normal operations up to the orbital bombardment and surface suppression stages, yet they do not infiltrate hives using orbital drops.

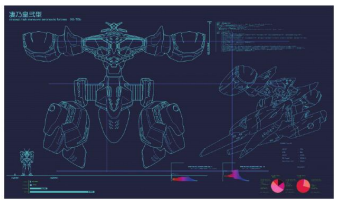
Once the Laser classes have been eliminated, the tactical armored forces around the hive are signaled to retreat to safe zones, before the G-Bombs are deployed from HSSTs on standby in low orbit.

After the G-Bomb has detonated, the units infiltrate the main hall through the main shaft.

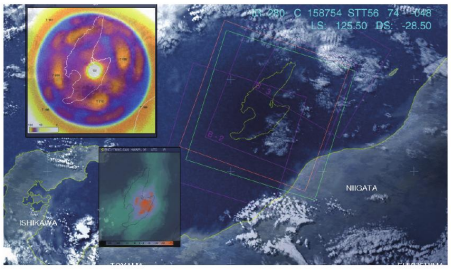
Operation Lucifer, the first use of the G-Bomb in combat, roughly followed this sequence. However, due to delays in communicating the deployment schedule, caused by a lack of cooperation between the participating nations, the procedure differed greatly such that the G-Bomb was deployed during the stab-infiltrating stage of the initial operation.

The Eurasian nations established their strategies on the basis of fighting inside of hives, on the surface, and to stop invasions, and so saw TSFs as a close quarters combat weapon to be used in stabs. Compared to this, the US treats TSFs merely as complements to the G-Bomb.

(★ 1) If the matter inside the affected area is not completely converted into energy, it should result in a release on the same scale as a supernova explosion. In fact, before the Morpheus Test, some scientists predicted that the G-Bomb detonation would erase the solar system.







The XG-70b Susano-O Mk. II, which was trial deployed during Operation 21st.
It exploded after its main engine, the Moorcock-Lechte Drive was made to go out of control, resulting in the Sadogashima Hive being wiped away without a trace.
This explosion was the equivalent of 20 G-Bombs that had been used at Operation Lucifer.

SUSANO-O

須佐之男



UN Forces XG-70d Susano-O MK. IV

[Lockweed, North Americana, McDaell Doglam]

The Revival of the HI-MAERF Project

The HI-MAERF Project seemed to have been completely forgotten after the US Armed Forces successfully deployed their G-Bomb in combat, and the pilot scheme for G-Bomb-centric Alternative 5 was making steady progress.

However, there is a certain irony in how the 'G-Bomb Threat Theory' found its roots in Eurasia and spread across the world, as a result of the weapon's deployment in 1999.

This theory was a response to factors such as the bomb's destructive power, and the gravity anomaly that it left afterwards. As a result, many countries sought an alternative to America's monopolization of the G-Bomb. However, the G-Bomb's inability to be intercepted, and the unpredictable nature of its effects were not raised as concerns during these protests, since these had been kept as top secret even after its deployment.

And in 2001, despite the opposition of the pro-Alternative 5 group, the UN decided to have Alternative 4 requisition the HI-MAERF Project.

Alternative 4 had been interfering with America's G-element monopoly ever since they immediately took over the ruins of Yokohama Hive in 1999. There, they found and used Gray Nine to develop the quantum conductive calculation device '00 Unit' based on causal quantum theory. 00 Unit was able to solve the gravity deflection problem that the HI-MAERF Project had been struggling with by being loaded into the XG-70.

Even after the HI-MAERF Project was halted, Lockweed continued to make small, independent improvements, albeit with a limited budget. This contributed to the completion of the prototype craft XG-70b (Susano-O Mk. II) in December of 2001. Only a year after taking over the project, Alternative 4 achieved outstanding results, such as having the XG-70b deployed to Operation 21st where it eliminated the surface BETA and destroyed the monument.

Although the Susano-O Mk. II self-destructed during the operation due to a malfunction in 00 Unit, by January of the following year, 2002, the improved, superlarge craft, the XG-70d Susano-O Mk. IV was deployed for combat in Operation Cherry Blossom, the operation to capture the Original Hive.

Like the Mk. II, the Susano-O Mk. IV was also lost during its operation. However, it had succeeded in destroying the Original Hive's backbone, the superlarge reactor (IJF strategic designation 'Target Alpha'), and it became the embodiment of the 'supreme weapon that could independently suppress the BETA' that the project had been chasing for over 30 years.

The XG-70 As A Weapon

The biggest characteristics of the XG-70 series, which allow them to act as independent suppressive weapons, are the anti-laser defenses using the gravity field (Rutherford Field), and the charged particle cannon, which is powered by the enormous surplus power supply.

The surface suppression conducted from the initial to middle stages of hive capturing operations require astronomical amounts of resources and personnel. Combat in the stab results in even more exhaustion of resources since it is difficult to deploy military strength or supplies en masse. However, Lockweed, as the drivers of the HI-MAERF Project, announced their estimates that when the XG-70 was actualized, hive capturing missions could be conducted with a fraction of the forces that had previously been required.

In fact, when the XG-70 was deployed to Operation 21st, a mere two shots from its charged particle cannon were able to destroy the monument and eliminate a majority of the 40,000 BETA present on the surface.

As this combat deployment of the XG-70 also served as an operational trial, it was merely worked into the existing conventional hive capturing strategies. It is said that if the operation had been centered around the use of the XG-70 from the beginning, rather than having it as a mere complement, it would have been possible to gain the same results with far fewer losses.

The Weakness That Arose During Development

During the HI-MAERF Project, the XG-70 was not given any weapons in particular, apart from the charged particle cannon. As a result, it had not fulfilled its original vision of being a supreme, independent suppressive weapon, as it was forced to rely on the Rutherford Field and TSFs to cover it.

The main cause of this was the difficulty in controlling the ML Drive.

When receiving attacks from Laser classes or groups of BETA, the XG-70 would usually respond by increasing the output of the Rutherford Field. When this happens, it results in the following problems:

* The ML Drive's reaction amount increases, significantly depleting the valuable Gray Eleven.
* The gravity deflection control becomes exponentially more difficult after the increase in output.
* Once the control fails, the drive enters a supercritical state, creating issues such as the anti-gravity reaction going out of control.

However, while being surrounded by the Rutherford field, conventional weapons couldn't be fired outwards, and it was extremely difficult to implement a defensive armament of conventional weapons.

Throughout the 1970's and 80's, limitations in arithmetic processing ability and specifications of the control systems made it impossible to simply close a single portion of the Rutherford Field.

Furthermore, once the particle cannon was fired, much of the Rutherford Field's generation would be channeled into refocusing the particles before the cannon could be fired again. This created a problem where parts of the Rutherford Field vanished on locations other than those used for attitude and mobility controls.

In response, a proposal was considered, which involved eliminating the BETA surrounding the hive in advance with the charged particle cannon. However, its range was short as it suffered from atmospheric decay even more severely than optical weapons, so it would be impossible to attack from a distance with no risk of counter attack.

Also, using conventional bombardments such as orbital and long range ones would have negated the purpose of the XG-70 as a supreme suppressive weapon, since such a strategy would yield no significant difference in ammunition used with or without the XG-70.

By this point, it was decided that the close quarters, defensive firearms of the XG-70 could not be placed inside of the Rutherford Field. There was no choice but to have them equipped on the XG-70's TSF escorts.

Now, the XG-70 was essentially a firing platform for the charged particle cannon, and was being used alongside conventional tactical armored forces tasked with ensuring its safety. In this sense, the XG-70 was more in line with the 'decisive fleet concept' of the past, where the destroyers and cruisers would eliminate the threat of enemies, with the battle being fought with a battleship's high-powered, long-range, large cannons.

XG-70d Susano-O Mk. IV

Lockweed and other manufacturers hadn't considered the problem solved, since the XG-70 still required escorts. While they were making the XG-70a and the XG-70b for operational trials of the ML Drive, and for crew training, they also prototyped the 'XG-70d'. This enlarged version of the XG-70, boasted a large amount of conventional weapons, with the anticipation of future improvements to the gravity deflection control system's capabilities.

The XG-70d had a significant in crease in armaments, such as 36mm chainguns and VLS systems. In a sense, it had become the true craft of the HI-MAERF Project.

The XG-70d was later requisitioned by Alternative 4, and was planned to be given even greater offensive power with 2700mm and 120mm railguns, but their application did not make it in time for Operation Cherry Blossom. Furthermore, the ML Drive was not the one intended for the XG-70d, rather, it was reappropriated from the XG-70b, and this resulted in a lower output. Since many storage battery cells were incorporated into it as an emergency countermeasure, it ended up being deployed with less than half of its defensive firearms.

Even so, it successfully destroyed the Original Hive's core, and high expectations are set for future developments.

PLAY BACK ALTERNATIVE

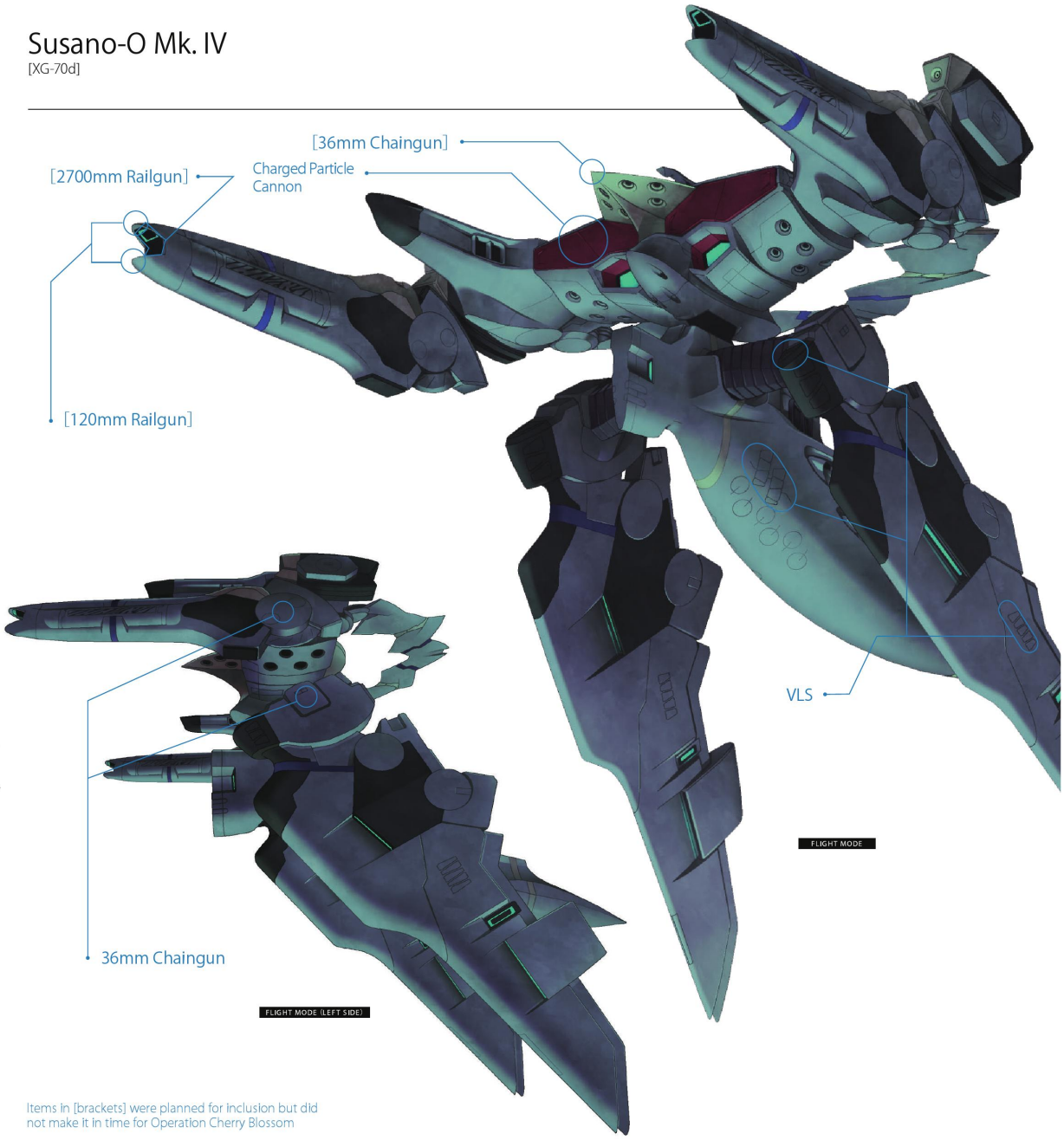






The XG-70b and the XG-70d were having adjustments made at Yokohama Base when the BETA dealt significant damage to it during a raid.
There was less time to adjust the Moorcock-Lechte Drive intended for the XG-70d, as the craft had suffered damage.
It was impossible to begin Operation Cherry Blossom without the XG-70d, but it was also impossible to delay the operation's schedule.
Sending out the craft with a drive that could not adequately control its output was nothing more than a gamble.
The alternate plan in this deadlocked situation was to load the XG-70d with the ML Drive of the XG-70b, which was the reserve craft.
Since the drive had not been designed for such a large craft, it was inevitable that it would generate a lower output, and some weapons were omitted to make room for the overwhelming amount of batteries loaded to offset this.
It was decided that Yashiro Kasumi would be mobilized as a support operator, to counteract the additional wear expected on 00 Unit resulting from the reduced offensive capabilities of the craft.
Although the XG-70d ended up participating in the operation under far from optimal conditions, it had succeeded in capturing the Original Hive, with the support of the Valkyries and their desperate fighting.

Susano-O Mk. IV
[XG-70d]



Items in [brackets] were planned for inclusion but did not make it in time for Operation Cherry Blossom

Armament Explanation (XG-70d Susano-O Mk. IV)

① Charged Particle Cannon

A particle beam weapon, which accelerates hydrogen atoms inside a column of electromagnets, and fires them once they have gained sufficient velocity. Upon firing, the air turns to plasma, and the target is destroyed by the heat and the impact of the particles. Unlike a laser, the particles have mass, and hence follow Newton's laws of motion when firing. Due to this, it is necessary to deploy a Rutherford Field behind the craft when firing, in order to negate the recoil.

② 2700mm Railgun

A cannon that fires a shell using the Lorentz Force, whereby an electric current is passed through two rails. The theory behind the railgun had existed for a long time, and it would have allowed for shells to be fired at higher velocity than gunpowder based cannons, but as it required an enormous amount of power, it had not reached a level of practical use. Two such 2700mm railguns were meant to be operated using the enormous amount of surplus power generated from the creation of the Rutherford Field. However, they were not equipped for Operation Cherry Blossom, due to the lack of output from having the main engine swapped.

③ 120mm Railgun

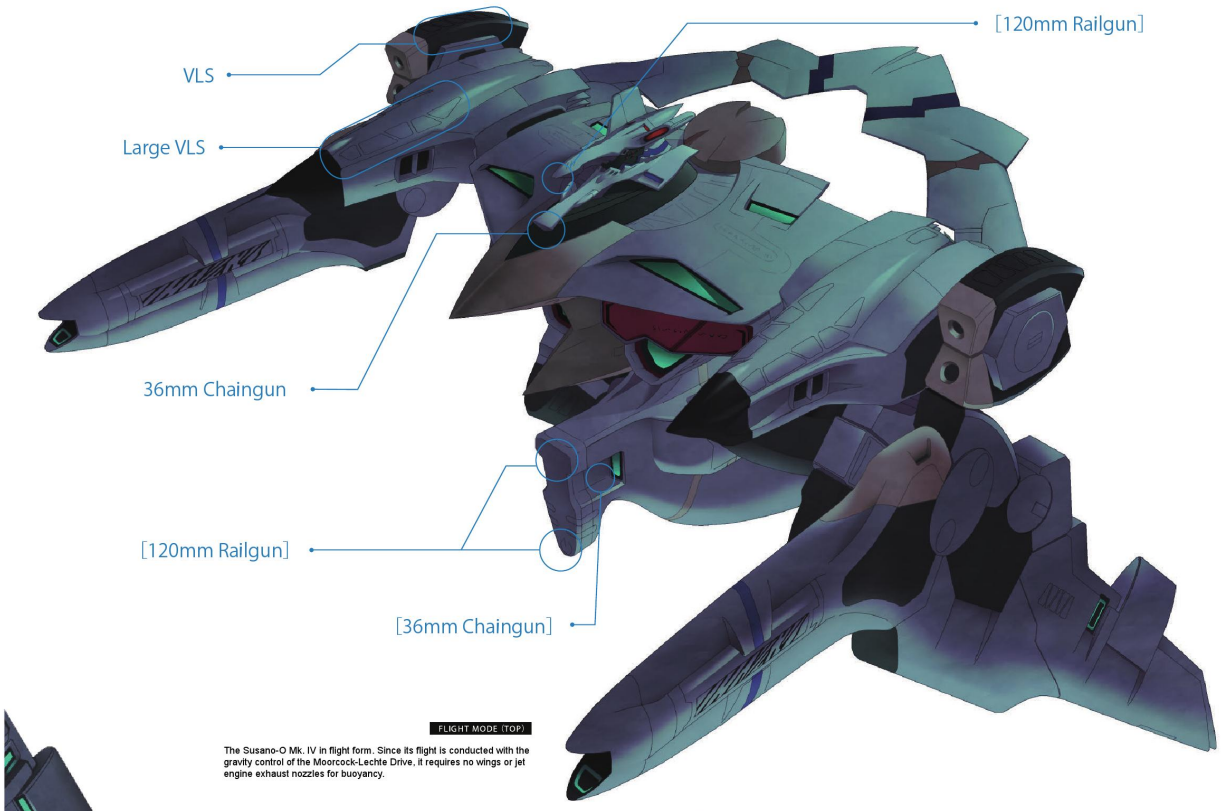
A small caliber railgun. Eight of these 120mm caliber railguns were planned to be mounted, but the adjustments for these were not completed by the time Operation Cherry Blossom commenced. The technology behind railguns, which had been cultivated during development stages, had also been appropriated to the Type 99 Railgun, which was trialed as a TSF-use weapon.

④ 36mm Chaingun

A weapon that has been appropriated from the autocannons in TSF assault cannons. Twelve were planned to be mounted, but with the problems with control adjustment for Operation Cherry Blossom, only six were mounted.

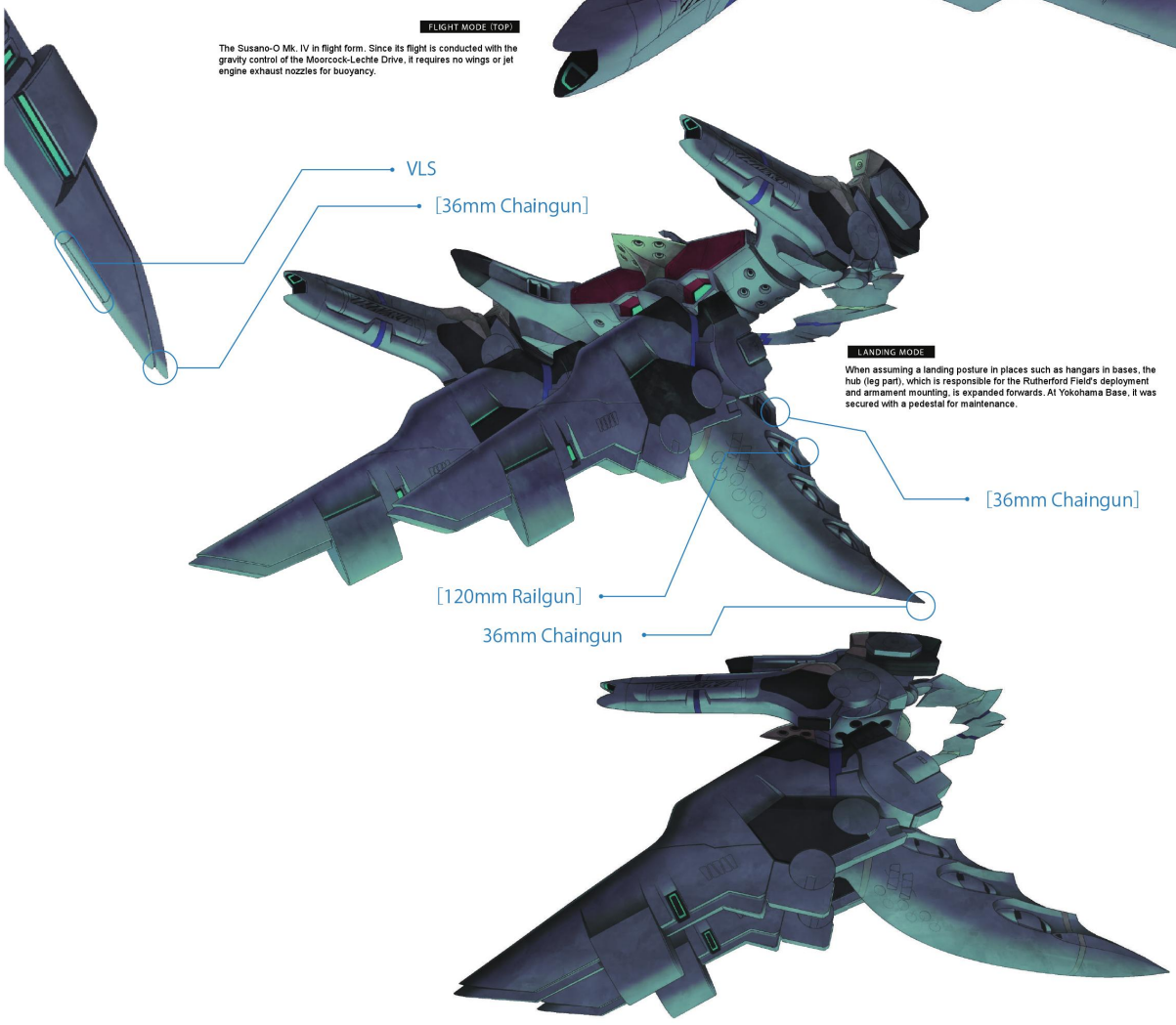
⑤ Multi-Purpose VLS

A VLS (Vertical Launch System) that had been attached perpendicular to the craft. The small VLS has 36 launch tubes and is mounted across twelve places. They are capable of firing three types of missile including anti-laser warheads, wide-area suppression warheads, and a conventional variety. The large VLS has been mounted in two locations, with each launcher having sixteen tubes. They are also capable of firing a septum-piercing, guided warhead.



FLIGHT MODE (TOP)

The Susano-O Mk. IV in flight form. Since its flight is conducted with the gravity control of the Moorcock-Lechte Drive, it requires no wings or jet engine exhaust nozzles for buoyancy.

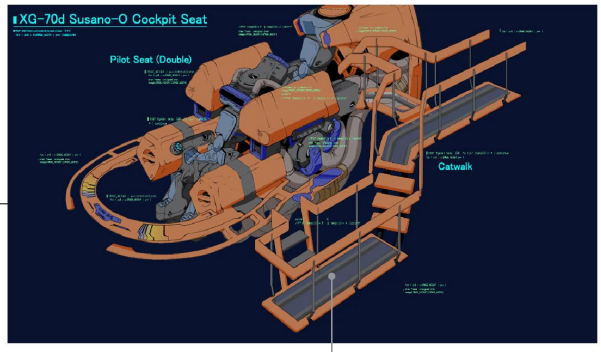


LANDING MODE

When assuming a landing posture in places such as hangars in bases, the hub (leg part), which is responsible for the Rutherford Field's deployment and armament mounting, is expanded forwards. At Yokohama Base, it was secured with a pedestal for maintenance.

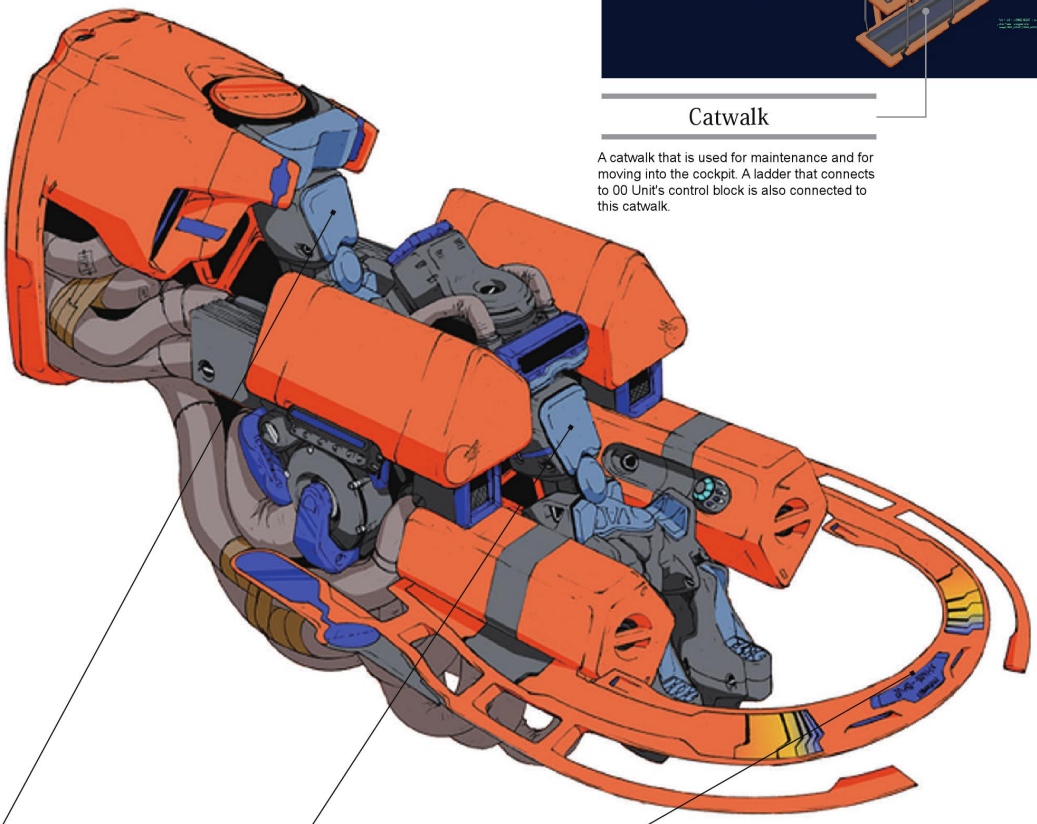
Susano-O Mk. IV Cockpit

The cockpit of the Susano-O Mk. IV. In front is the gunnery and the piloting seat, and in the rear is the navigator seat.



Catwalk

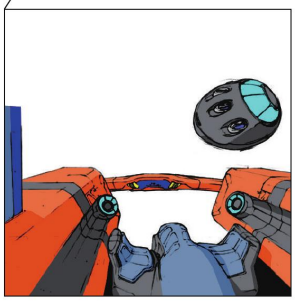
A catwalk that is used for maintenance and for moving into the cockpit. A ladder that connects to 00 Unit's control block is also connected to this catwalk.





Navigator Seat

Yashiro Kasumi's navigator seat, viewed from the rear-left. Yashiro conducts control support through her reading ability, and since she does not control the craft directly, there are no standard control mechanisms like a control stick placed on this navigator seat.



Gunner Seat

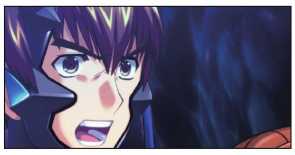
A gunnery and pilot seat for Shirogane Takeru. At its front is a seamless, fully spherical screen.



Charged Particle Cannon Activation Switch

A switch used to fire the charged particle cannon of the Susano-O Mk. IV. Once the safety is released, a trigger grip sticks out. The charged particle cannon is fired by holding the grip and pressing the two triggers with the index finger and thumb.

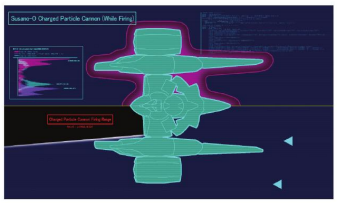








The Susano-O Mk. II while deploying the Rutherford Field. Since Laser-class BETA's lasers are electromagnetic waves, they cannot breach the Rutherford Field's gravity deflection.



A diagram showing the damage zones of the charged particle cannon. It fires magnetically and electrically accelerated hydrogen atoms to destroy the target through heat and impact.

UN Forces
XG-70b Susano-O Mk. II
[Lockweed, North Americana, McDaell Doglam]

As part of Alternative 4, the UN Forces requisitioned the XG-70b, which was the 2nd prototype craft for the strategic aeronautic fortress.

Susano-O Mk. II specifically refers to the craft that had been remodeled so that 00 Unit could board it.

Its only weapon is the charged particle cannon, and it is equipped with no conventional weapons for medium to close range combat.

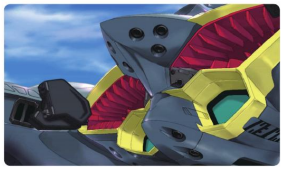
If the Rutherford Field is deployed, it is capable of repelling groups of BETA and even defending against laser attacks. However, receiving such interference strains the Moorcock-Lechte Drive, making the craft exponentially more difficult to control. Therefore, a TSF escort is a necessity when deploying it into operations.

The Susano-O Mk. II was deployed as a decisive weapon, to act as the backbone of Operation 21st.

However, from the fact that craft was based off the XG-70, which was made for operational tests of the ML Drive, it can be assumed that the main goal of its deployment was to test the Rutherford Field and charged particle cannon under 00 Unit's control.

However, the control of the Rutherford Field was far from perfect. Controls to keep it from engulfing its escort units were not conducted by the Susano-O Mk. II itself, rather, the escorts are kept in an automatic avoidance mode. By the end of the operation, the Susano-O was lost in a self-destruction caused by a malfunction in 00 Unit.

PLAY BACK ALTERNATIVE







The Susano-O Mk. II was deployed to Operation 21st, where it completely destroyed the Sadogashima Hive's monument with its charged particle cannon. However, 00 Unit's readings recovered her past as Kagami Sumika, her memories of what the BETA had done to her, and memories of Shirogane Takeru being with women other than Sumika in 'other worlds'. This caused an emotional shock that rapidly deteriorated 00 Unit's ODL, and she entered a standby mode.

As a result, the Susano-O Mk. II became inactive, and it was decided that it would need to be self-destructed and abandoned. It vanished from the face of the earth, alongside Sadogashima itself.

00 Unit's Fortified Suit

A fortified suit worn by 00 Unit when boarding the Susano-O. It has practically the same functions as the Type 99 Fortified Suit used by Surface Pilots.





00 Unit

From the results of readings conducted on BETA during Alternative 3, it was found that BETA possessed thought processes, but that these were not affected by projections.

Based on this, the possibility was raised that the BETA didn't recognize humans as life forms, since they were carbon-based.

And so, Alternative 4 was selected to explore methods of communication with the BETA through a non-carbon pseudo life form.

The creation that would form the basis of this idea, with zero biological essence and zero life signs, would become known as '00 Unit'.

Kagami Sumika, kept alive in Yokohama Hive as just a brain and spinal cord, was proof that the BETA had shown an interest towards mankind. She was the once-in-a-lifetime opportunity for Alternative 4, which had the main goal of having the BETA recognize humans as a life form.

And so, she was chosen as the candidate body for 00 Unit, and her personality would be transferred to its quantum conductive brain.

00 Unit imitates the form of a human to prevent a mental rejection, by having the personality in the quantum conductive brain recognize itself as 'human'.

As a result of this, most of the living tissue has been faithfully recreated, and it is almost possible for it to live an almost normal life, barring the restriction on the time it can be active, due to the deterioration of ODL.

Since 00 Unit had been developed from some of the results of Alternative 3, she has been given reading and projection abilities. Also, with the high speed calculations of her quantum conducting brain, she is even capable of hacking every computer in the world and placing them under her control. As a result, a theory of 00 Unit's threat was also raised in some places.

00 Unit's Abilities

Quantum Conducting Brain

The quantum conducting brain is the core of 00 Unit.
It is an ultra-high specification computer that is based on quantum causality theory, and which acts as a parallel processing device equivalent to 15 billion semi-conductors. It is an artificial brain made of the high temperature superconductor 'Gray Nine', and it is connected to quantum conducting brains in 'other worlds' where 00 Unit exists, in order to perform parallel processing. The arithmetic abilities of the quantum conducting brain made it possible to control the Susano-O Mk. IV's Moorcock-Lechte Drive and the Rutherford Field, which was impossible with the computers available prior to that point. It is also capable of hacking into any computer if so inclined.

Reading Ability

An ability that reads the target's thoughts as a 'picture' and emotions as a 'color'. It was the primary focus of Alternative 3, which sought to read BETA's thought processes. Alternative 3 also conducted selective breeding by using artificial insemination to cross the genes of those with strong reading abilities. The use of this ability to read information from BETA was also a goal of Alternative 4. A thought wave communication element named 'Bufwite' and a microchip are embedded into 00 Unit's ribbon. Thought wave patterns of individuals such as those from the Alternative Program are registered on the microchip, and it is designed to neutralize thought waves directed at 00 Unit. This is done to stop 00 Unit from accidentally reading people's thought processes.

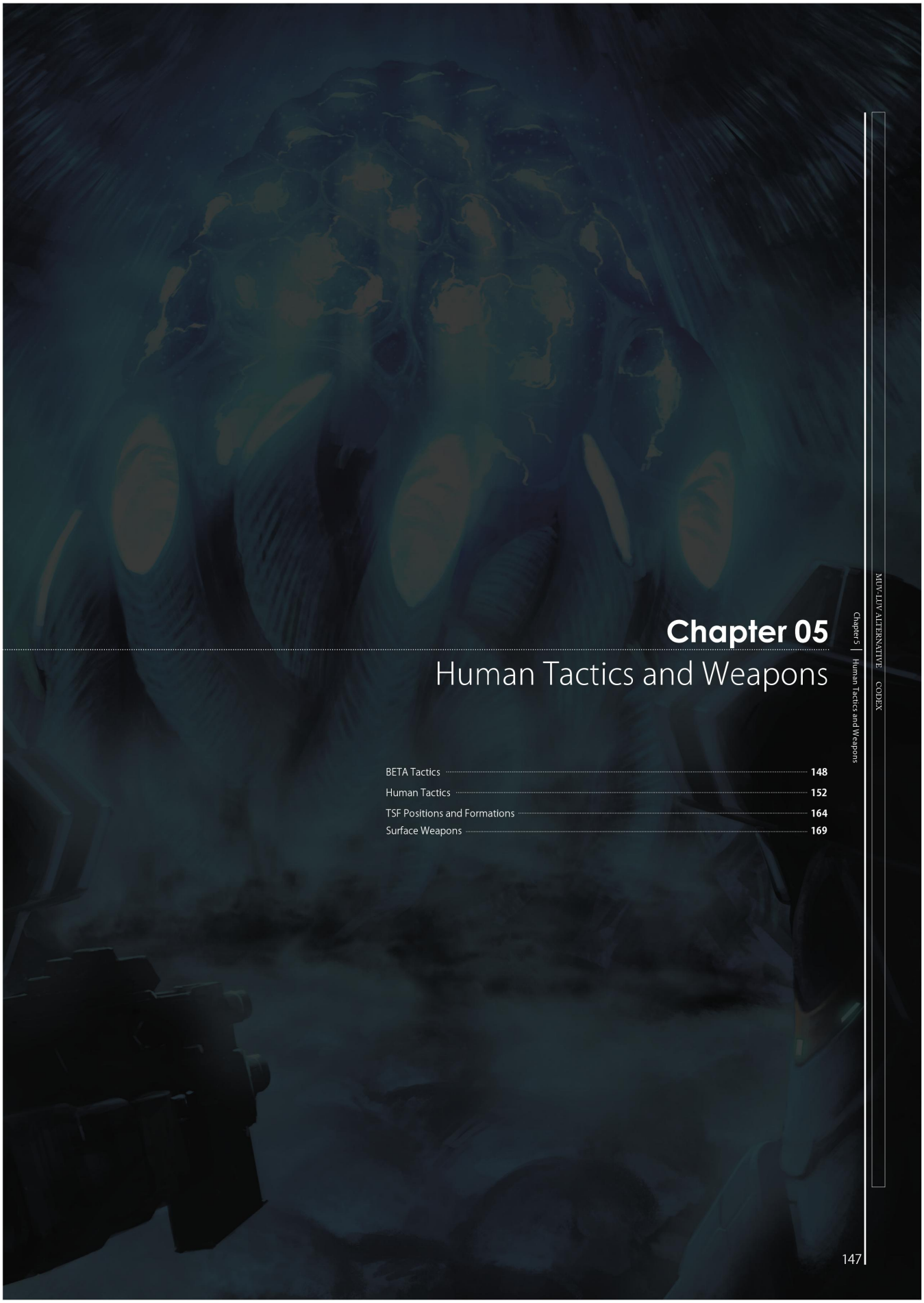
Projection Ability

An ability that can project thoughts or emotions in the form of 'pictures' and 'colors' to a target. It was being tested through Alternative 3's artificial espers. Having inherited the results of Alternative 3's research, 00 Unit has been given this ability, at a significantly stronger level.

A-01's True Nature—— To Cultivate Candidates

On the surface, A-01, answering directly to Executive Officer Kouzuki Yuuko, is a task force for special operations. However, its true purpose was to select a candidate body for 00 Unit. The 207th Surface Pilot Training Academy, which had been established at Yokohama Base, was also created with the intent of cultivating candidates for 00 Unit. When it was first formed, A-01 was the size of a regiment, but by Operation 21st, after countless deployments against BETA, they were reduced to one squadron. The reason as to why they kept being deployed into the toughest battles was, simply put, to select 'a person with good luck'. This is because of 00 Unit's required abilities. Firstly, in terms of quantum causality theory, 00 Unit must be able to attract a 'future with a better probability branch'. Secondly, it must be able to receive information that has leaked from parallel worlds and subconsciously select precise actions in order to choose the 'correct future'. Even after Kagami Sumika had begun her role as 00 Unit, A-01 continued its activities. It can be said that 00 Unit was only completed since there were those who sacrificed themselves to select a better future, and were therefore able to leave possibilities for the future.





Chapter 05
Human Tactics and Weapons

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BETA Tactics

The BETA's ecology and thought processes remain great unsolved mysteries, even as of 2001, more than thirty years since the outbreak of the Great BETA War.

Something that remains a significant point of debate among not only biologists, but also the military, is whether BETA have a concept of 'strategy'.

If the Laser class, which was not present on the lunar surface, appeared as a countermeasure against humanity's air power, this suggests that BETA have the ability to create entirely new strains in an extremely short period of time.

In short, even if an overwhelming advantage were to be gained over the BETA, through a new weapon or tactic, it is possible that this would trigger the creation of an even more powerful strain. This deduction has been treated as a nightmare scenario for a long time among researchers of anti-BETA weapons and tactics. Therefore, meticulous care is always taken when observing BETA activities.

This is because whenever any change is observed, it is necessary to determine whether such a pattern had been observed in the past, or is a completely new type of change.

This section will detail the habits and movement patterns of the BETA, as revealed through combat against them. This will include information on the Laser class, and the effectiveness of reconnaissance and detection against the BETA.

What Are BETA Tactics?

The BETA are said to not possess any noteworthy tactics other than relying on their numbers to conduct group assaults. However, there is debate as to whether this is truly the case.

Their Unchanging, Fundamental Strategy

Advance, advance, advance—

A little over thirty years since the Great BETA War commenced, the BETA's fundamental strategy still has yet to change in the slightest from their simplistic group assault tactic, succinctly summarized by the line above. The only exceptions have been that they have become less susceptible to diversionary tactics, and have been prioritizing attacks on manned weapons since the latter half of the 90's.

Regardless, BETA have demonstrated few rudimentary, but rational group behaviors, which can barely be called 'tactics'. For example, their basic formation that hasn't changed since the beginning of the war. The Destroyer class, with its highest marching speed and charging strength takes the vanguard position, while the Grappler and Tank classes advance to form the core strength. The Fort class acts as the rear guard, or sometimes as a shield for the Laser and Heavy Laser classes behind them, which conduct long-range attacks from the furthest position in the back. Other apparent tactics include how Laser classes prioritize attacks on air power, and how all BETA prioritize attacks on weapons carrying high capacity computers.

BETA Movement Characteristics

BETA movements appear to be more akin to biological 'habits', as they are not complex enough to be called tactics. Furthermore, these actions show no signs of being advanced military doctrines or theories, such as those cultivated by humanity over thousands of years of experience.

There are theories stating that even their pattern of advancing resembling a tactical action is nothing more than a coincidence that has resulted from the differences in advancing speeds of the various BETA classes.

The Tendency to Invade Flat Plains

The fact that BETA seem to prefer advances over flat plains is pointed out as an irrational characteristic of BETA movement.

Of course, BETA would not give up on an invasion if there was no other route than through mountains, as demonstrated by the invasion of northern Italy in 1985. However, it is particularly strange that even though BETA are more able to traverse uneven terrain than mankind's four-wheeled vehicles or tanks, they have never set up positions on high ground, where Laser classes would have an overwhelming advantage. For example, a 20m tall Heavy Laser class at sea level could see the horizon 15km away, but their view of the horizon would increase to 40km by just climbing a hill of 100m.

Laser classes that have climbed hills during their advances are certainly dangerous, but the most commonly used strategy against this is to hide and wait until they continue their advance and inevitably climb down.

Furthermore, since the terrain surrounding a hive is converted into plains during the hive's construction, there is no threat of being shot at from above by Laser classes during a hive capture.

Rivers and Straits

When analyzing the invasion pattern of the BETA, they appear to avoid travelling through large rivers or straits.

They can advance through narrow rivers unfazed, but for rivers reaching widths of 400–500m, such as the Rhine or the Loire, a trend has been observed where they temporarily halt their advance for several days at most, as they wait for a certain number of BETA to gather.

Furthermore, for rivers with widths of over 1km, such as the Danube, the Volga, and the Yangtze, cases have been observed where their advance stops until their numbers in the area, which increase following the construction of a new hive, have reached full saturation.

However, these actions bear no significant difference to what occurs when advancing over plains, as mentioned above. Because of this, as well as the fact that they manage to cross bodies of water regardless, once enough BETA have gathered, it appears that rather than showing some propensity to avoid bodies of water, the BETA are instead stopping to conduct some kind of priority determination.

Furthermore, it is difficult to measure the degree to which the river itself slows down an invasion. This is because the slowing of an invasion is compounded not only by the water itself, but also by culling operations, which take advantage of the BETA's slowed movement when travelling along the river floor, as well as of the defense and transportation abilities that come from being able to deploy naval vessels.

As mentioned before, the BETA literally advance by walking along the floor of the body of water, and BETA travelling over the surface of the water itself have never been identified.

Due to this, the chance of BETA advancing through oceans beyond a certain depth was seen as low.

The fact that Athabasca was invaded by an orbital deployment, rather than by BETA from Kashgar crossing the ocean to reach North America, was used as the basis for the assumption that BETA could not cross oceans.

However, during the Defence of Britain in 1985, and the Defense of the Messina Strait in 1993, it was revealed that for straits of depths over 100m, the BETA were only temporarily halting due to factors like the previously mentioned decline in speed.

Furthermore, during the BETA invasion of the Japanese mainland in 1998, they crossed bodies of water of depths greater than 100m, such as the Tsushima Strait and the southern end of the Sea of Japan, during a typhoon. Further observations, such as the invasion of the west coast of the Kamchatka Peninsula via the Sea of Okhotsk, which has been ongoing since 1999, have revealed that BETA will cross any body of water, so long as there is land on the other side.

However, as of 2001, the only case where they have walked through water with a depth of over 500m has been at the crossing of the strait of Gibraltar. Therefore, it is thought that they determine their priorities, based on some kind of movement cost, which results in them avoiding invasions through relatively much deeper waters.

Changes in BETA Tactics

As outlined above, the BETA's tactics can be framed as nothing more than 'advancing', and from a human perspective, they perform many irrational actions.

However, with their overwhelming numbers, the BETA have continued to achieve victories over humanity's advanced strategies, with this single and incredibly simple tactic.

If viewed from a different perspective, perhaps the thirty years of humanity's survival is due to how simple the BETA's tactics are, even with their overwhelming numerical advantage.

However, this assumption of simple group assault tactics was shattered in December 2001 during the Defense of Yokohama Base.

By the latter half of the 1970's, results from Alternative 3's experiments on the effects of diversionary tactics on the BETA were becoming apparent. Specifically, the BETA possessed certain abilities in learning, and could respond to humanity's tactics, and that this learning could be shared among all hives across Earth.

However, during the Defense of Yokohama Base in 2001, the BETA demonstrated actions suggesting the effects of learning about humans themselves, rather than just their actions.

Although rudimentary, strategic actions that had never before been observed suddenly emerged. These included actions that were unmistakably diversions, the withholding of Laser classes for later use, the Laser classes' prioritization of the base's gate rather than air weapons, and mass deployments of small strains that took advantage of Destroyer class corpses as cover. These turned all BETA research on its head (★ 1).

Furthermore, during Operation Cherry Blossom, conducted in January 2002, immediately after the Defense of Yokohama Base, cases were reported of BETA not intercepting the AL missiles that had been deployed from orbit in advance, thereby avoiding the creation of a heavy metal cloud. Instead, they were observed to aim laser attacks directly on the descending TSF craft.

If these new strategies were conducted on a global scale, mankind, with its inferior numbers, would inevitably collapse.

Fortunately, since the success of Operation Cherry Blossom, the transmission of new tactics to BETA in preexisting hives has not been identified.

(★ 1) Since 1998, a trend has been observed whereby BETA identify manned weapons and prioritize them for attacks, but no one had recognized this as an omen for what was to come.

The Scale of BETA Numbers

When describing the numbers of individual units in a group of BETA, a commonly used expression is 'a BETA group of X scale'. This is because vibration sensors cannot acquire individual BETA smaller than a Tank class, so it is impossible to calculate the precise number of BETA.

Therefore, calculations of the total number of BETA are done by using an estimate, which adds a predicted number of small strains, based on past values, to the total number of observed large strains.

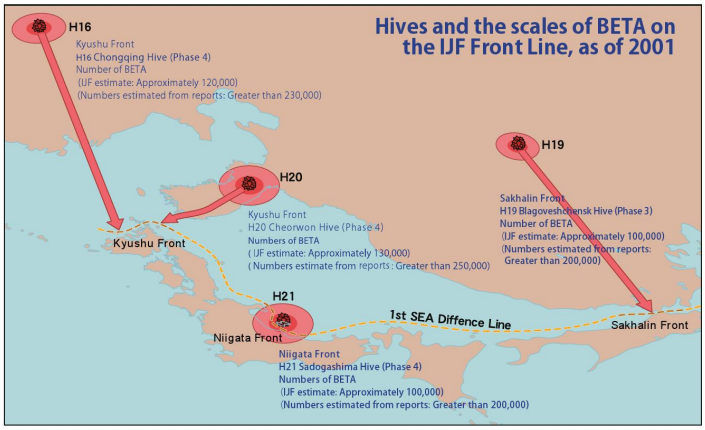
The X in 'a BETA group of X scale' follows the composition of modern armies, and includes terms such as 'battalion' and 'division'.

Army/Corps:	30,000+
Division:	10,000–20,000
Brigade:	3000–5000
Regiment:	2000–3000
Battalion:	300–1000
Company:	60–250
Platoon:	30–60

The composition ratios of groups of BETA are calculated using the data provided on the right.

Of course, these values vary greatly depending on the phase of the hive they emerge from, or the state of the invasion, so these are nothing more than estimates.

For hives that have matured to Phases 5 and beyond, 70% of the entire group consists of Tank class BETA or smaller, commonly defined as small strains, while Fort, Laser, and Heavy Laser classes each only make up 1% of a group's composition.



On a related note, it has been found that the amount of BETA in a hive's surroundings tends to increase until the hive reaches Phase 4, but declines after reaching Phase 5.

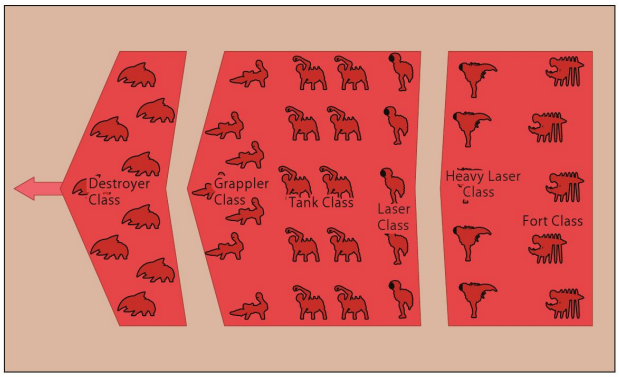
Composition Ratio of a Brigade-scale BETA Group

Fort Class:	Approx. 1%	Laser Class:	Approx. 1%
Heavy Laser Class:	Approx. 1%	Destroyer Class:	7%
Grappler Class:	15%	Tank Class:	45%
Warrior Class:	15%	Soldier Class:	15%

BETA Positions During Invasions

BETA Formations During Invasions

BETA appear to assume set formations across practically all of their invasions. However, their relative positions appear to be based on differences in movement speed rather than being the result of a strictly defined tactic. For convenience, these positions are called 'vanguard', 'middle guard', and 'rear guard', though there is a low chance that BETA are aware of such concepts.



Vanguard

The vanguard is formed mainly by Destroyer classes, which charge at the rapid speeds of 80-120km/h. Their charge is especially dangerous when Laser classes are behind them, as those make the charges difficult to avoid with boost jumps.

Middle Guard

The middle guard consists of Grappler, Tank, and Laser classes. These move at speeds of approximately 50–60km/h. The numbers of BETA in the middle guard are extremely large, and it is easy for combat here to fall into chaos.

Rear Guard

The rear guard is made up of Fort and Heavy Laser classes. They move at a slow speed of only 30–40km/h, but if the rear guard is able to catch up to the vanguard or middle guard during combat, the range of the Heavy Laser classes can come into play, so it's best not to let one's guard down.

If BETA tactics were to be roughly expressed in human terms, the Destroyer class would charge in as the vanguard, a mix of Grappler and Tank classes would form the core of the offensive, the huge and slow Fort class would be the rear guard, and the Laser/Heavy Laser class would provide cover from air attacks while also providing fire support.

Of course, this comparison is nothing more than a single example of a pattern that can be observed during their invasions.

From the beginning of the war, it has been known that in individual combat situations, BETA make full use of various tactics. For example, individual Laser classes cover each other's refiring intervals, and Grappler and Fort classes act as walls to protect Laser classes.

Based on this, some scientists claim that BETA have some form of intelligence, but these examples provide no conclusive evidence, since these actions resemble the instinctual behaviors of organisms like insects.



Effective Range of the Laser Class

The Laser class completely overturned humanity's strategic concepts. Their attacks, which are capable of neutralizing air and land forces alike, combined with their numbers, make them the most dangerous enemy.

Whenever the threat of the BETA is spoken of, the one other thing that is always raised alongside their overwhelming numbers is the Laser class.

In April 1973, the BETA finally reached Kashgar on Earth from the lunar surface. They landed with neither air power nor anti-air capabilities. Therefore, in the first two weeks of fighting, mankind's air operations had dominated.

Even so, humanity would come to see the overwhelming numbers of BETA, which were enough to hold out for two weeks with these conditions.

However, the loss on the lunar surface can be most attributed to the harshness of the space environment and the extremely long logistics line from Earth to the lunar orbit.

With this battle being fought on Earth, China rejected UN intervention at Kashgar, and the UN accepted this, based on the optimistic outlook, as judged by the first few days of combat (★ 1).

However, two weeks after the onset of combat at Kashgar, humanity's never-ending nightmare began, with the appearance of the Laser class.

Mankind's air superiority dissolved in an instant, and even surface weapons on the same ground level of the Laser class weren't safe from the light-speed, uninterceptable attack known as a laser.

Laser Attack Capabilities

The threat of the Laser class can be split into two factors: the power of the laser attack itself, and the sheer accuracy of the Laser class.

An attack from the Laser class boasts high output, which is not influenced by atmospheric conditions or weather, while a Heavy Laser class's attack is able to vaporize the heat-resistant armor of battleships and armored destroyer vessels in a mere dozen seconds.

The biggest threat of a laser attack is that, unlike bombardments with physical shells, there are very few ways to counteract a laser after it is fired.

Before a laser is fired, there is some low-output initial irradiation, which is thought to be used to assist in aiming. This lasts for several seconds, and is followed by an attack with a maximum output irradiation.

From this, the best defense is to detect the initial irradiation as soon as possible, then destroy the source of it, before the armor of the weapon used against it is melted by the maximum output of the laser.

Furthermore, Laser classes are capable of performing their high-output attacks repeatedly and over a long period of time.

Although the method of how the BETA are supplied with energy remains a mystery, there have been observed cases where an individual Laser class has continuously fired over several hours, without needing to return to their hive, their supposed supply base.

Single laser attacks by Laser classes can be held for a maximum of around a dozen seconds, whereas a Heavy Laser class can hold their attack for over thirty seconds. Both can re-fire a limitless amount of times, with gaps of 12 and 36 seconds respectively, between each class's attack.

From a human perspective, a single laser attack may require the energy from a small scale nuclear explosion or a massive chemical reaction, and a continuous laser would require something like a nuclear reactor. So it is baffling to see this kind of attack produced in living organisms that are only 3 or 20m tall, especially since their energy source remains a mystery.

If a laser attack of this output is received, not only does the surface of impact melt due to the high energy, but the surrounding armor and air explode while turning into plasma. Because of this blast, the entire target of the attack suffers fatal damage.

As of 2001, the anti-laser armor that had been applied to equipment such as TSFs, tanks, and battleships has been given properties to suppress this plasma explosion. This new armor gains its anti-laser properties with a vaporization film and heat-resistant armor material. Together, these act as ablation material, which slows down the processes of vaporization and plasma conversion, resulting in a lesser explosion (★2).

For armor on TSFs or tanks, the anti-laser vaporization film and the heat-resistant material can last three and two seconds respectively against a small Laser class's maximum output, for a total of five seconds. Of course, armored surfaces that have deteriorated after being hit, even once, will no longer function as an anti-laser defense. A laser's movement is only visible because the air along the travelled path lights up as it turns to plasma (★ 3).

For the lasers from the small strain, this layer of plasma is so thin that there is no need for concern, but in the case of the Heavy Laser class, the shockwaves created when the air turns to plasma cannot be ignored.

Not only are these shockwaves fatal to infantry or small vehicles, they also pose a significant threat to transport aircraft, helicopters, and TSF making aerial evasive maneuvers.

Detection and Aiming

The ability of the Laser class to aim is a significant threat, and there are still many aspects of it that haven't been explained.

Firstly, when observing the range of a high-output laser in the atmosphere, they appear to reach estimated heights of 200-300km, while a Heavy Laser class can have a range of over 1000km. However, even though they are capable of firing that far, they do not always attack targets within that range.

Laser classes make flying objects, such as aircraft and missiles, their top priority. Their next priority, a priority that is shared across all BETA, is to attack high-capability computers on ground level, though the method by which BETA detect these computers remains unknown. Laser classes will then attack such a computer once it is detected, in range, and within line of sight (Refer to Diagram 1).

For example, it has been found that Laser classes will identify an aircraft at distances over 300km, flying below the horizon, and they will adjust their position in preparation of firing.

As soon as line of sight is established between the Laser class and its target, they emit a low-output irradiation, which is thought to be for aiming, then emit a full output laser a few seconds later and shoot down their target.

Laser classes also excel in acquiring a target and tracking them during the firing process.

With this ability, they can precisely acquire and track not only standard missiles, which travel faster than the speed of sound, but also hypersonic orbital bombs, which reach Mach 7-8.

Unguided rounds not equipped with electronics are less likely to be detected, but if they are, even those at lengths of under a meter are shot down.

Due to this, any kind of attack using projectiles over a certain distance, such as orbital or conventional bombardments, must be conducted as saturation attacks, with the expectation that some projectiles will be shot down before reaching their target.

Due to the extremely high tracking ability of both Laser classes while firing, it is near impossible for objects in flight that cannot have a large angle of movement with respect to the laser source, such as aircraft, to avoid the attack.

Furthermore, once a craft is detected, distance is no barrier against the light speed laser attack. On the contrary, it is easier to avoid them at closer ranges, where the angles of attack swing much wider when conducting evasive maneuvers (it is impossible to 'evade' a light speed laser attack, and the action is more akin to 'shaking off' the tracking, yet, for simplicity's sake, these two terms will be interchangeable).

TSFs take advantage of this property and evade attacks by closing in on the Laser classes.

On the other hand, there are cases where high priority targets (or at least targets thought to be high priority) move into the detection range of a Laser class, but are not shot down.

The most obvious examples are satellite groups that move through Earth's low orbit path, at heights of 200–500km, and low orbit shuttles such as the HSST. Both of these clearly pass through the detection and firing range of Heavy Laser classes that populate a hive's surroundings, but neither of these objects have ever been shot down, and the reason for this remains a mystery.

This finding applies not only for these artificial objects in orbit, but also for atmospheric reentry vehicles that are used for orbital drop tactics or for low orbit transportation. When these enter a reentry path, they clearly pass through the detection and firing range of the Laser class, since they often travel over a hive. However, the Laser classes at these hives do not intercept the craft, rather only the Laser classes at the final destination of the craft will attack it.

This phenomenon was observed in the early days of anti-BETA space tactics development during the 1980's, with the 'Triad Experiment', which was led by the UN. Although the reasons for this remain unknown, the findings have assisted mankind by ensuring that the zone of deployment is the only place where the projectiles will be intercepted, and it has greatly expanded the safe atmospheric flight routes for low orbit shuttles, which had been the primary high speed transportation method even before this finding.

Though this phenomenon has greatly contributed to the survival of humanity, its underlying causes remain unknown, and this has fostered a feeling of unease that 'the BETA might change their minds one day'. Hence, research to clarify the BETA's situation-response model is being hurried.

(★ 1) Out of political considerations, it has been removed from formal records, but the Chinese government officials of the time had stated that in only two more weeks, these extraterrestrial lifeforms would be terminated.

(★ 2) Although some private coverage claims that the vaporization film 'reflects' the laser, this is incorrect. It is true that the heat-resistant armor material below the film has a broadband reflective layer, but this is completely different to a mirror's type of reflection, and it merely assists in the two second armor ablation mentioned before.

(★ 3) Although it is sometimes confused with the charged particle cannon, which is being researched by several countries, unlike a charged particle cannon, a magnetic field doesn't form over the plasma layer surrounding the laser, and there are almost no cases where electromagnetic interference occurs.

Fundamental Concepts in Establishing an Anti-BETA Front

Excluding the few lessons learned from the Lunar War, by the onset of anti-BETA warfare in 1973, mankind was still entrenched in its traditional, anti-human military doctrine.

Two major changes to tactics would then be observed, firstly with the neutralization of air power with the Laser class, and secondly, with the emergence of the TSF, which would replace aircraft. However, during the 1970's, the TSF was used as little more than a faulty, clunky combination of a tank and a helicopter.

From the continued threats to humanity's survival, such as the loss of Europe after the failure of Operation Palaiologos, and the withdrawal from Eurasia, the limits of standard military doctrine became apparent. In just over a decade, humanity would significantly revise the existing anti-human tactics that had been used up until then, and construct tactics to use specifically against the BETA. It was not the case that the military of the 1970's was incompetent. Humanity simply had little grasp of BETA ecology, capabilities, and habits.

Therefore, they could only base the BETA's tactics, strategies, and actions on predictions and speculation, or from the lessons learned on the battlefield. In short, they were at the stage where they were gathering and analyzing the lessons learned, literally though the blood and sweat of soldiers.

In the 1980's, new tactics to oppose the BETA had become established, and in the 1990's, mankind was beginning to grasp offensive weapons and tactics against the BETA, such as AL missiles and orbital bombardments.

However, one of the most important concepts of the Great BETA War is that of the 'defense line'. It is no exaggeration to say that these are directly related to humanity's survival.

As of present, in 2001, the global population is estimated to be 1.4–1.6 billion, and now, nations no longer have the means to adopt human wave attacks, and are forced to construct fronts with as few personnel as possible.

The world's militaries have constructed both proper and preliminary defense lines en masse in strategic locations of military, political, and economic importance. Gaps in these lines have been filled with observational and monitoring posts.

A large number of combined forces, which include infantry, are deployed to these defense lines, which are set up on these strategic locations. Behind them, a large number of artillery is deployed.

These fixed positions can be considered final defense lines, and many mobile forces largely consisting of tactical armored units, mechanized infantry, and aeronautic forces are deployed to these positions. These forces work hard to reduce the impact of the BETA, through culling operations and through actions to delay them. Such actions reduce the strain on the final defense line, in preparation for the worst-case scenario of the BETA breaking through.

Of course, these defense lines are constructed within the effective range of artillery, so it is possible for frontline TSFs to receive support from the rear guard with things such as heavy metal clouds.

Bases of a reasonable scale are usually constructed in order to support the logistics to these deployed units.

Further out front, outposts are constructed and function as the backbone of the early stage warning system that aim to detect the movement of BETA as quickly as possible.

TSF forces are also deployed here, though at a small scale, and patrolling units (TSFs/UAVs) also undertake their missions using these as bases.

A small amount of combined arms is also deployed to these outposts, allowing them to retain a degree of combat readiness against small-scale groups of BETA.

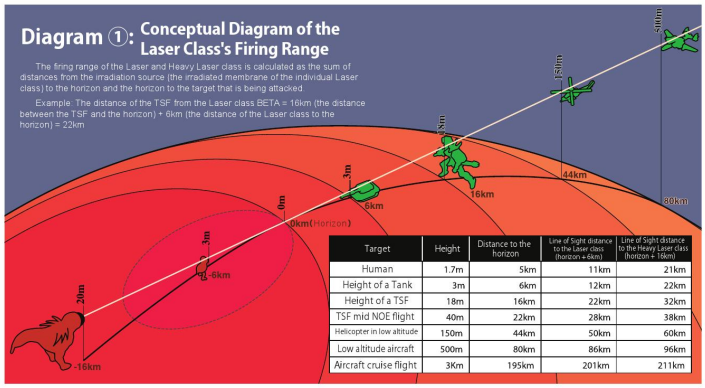
Aside from these, forces such as armored tactical regiments can remain in a state of readiness for damage control, and can respond to large-scale BETA invasions that infiltrate gaps between outposts.

For combat zones even further away from human territory, reconnaissance satellites and UAVs conduct missions alongside small numbers of reconnaissance teams, which all vigilantly serve as the eyes of humanity, constantly observing the BETA.

Diagram ①: Conceptual Diagram of the Laser Class's Firing Range

The firing range of the Laser and Heavy Laser class is calculated as the sum of distances from the irradiation source (the irradiated membrane of the individual Laser class) to the horizon and the horizon to the target that is being attacked.

Example. The distance of the TSF from the Laser class BETA = 16km (the distance between the TSF and the horizon) + 6km (the distance of the Laser class to the horizon) = 22km



Target	Height	Distance to the horizon	Line of Sight distance to the Laser class (horizon + 6km)	Line of Sight distance to the Heavy Laser class (horizon + 16km)
Human	1.7m	5km	11km	21km
Height of a Tank	3m	6km	12km	22km
Height of a TSF	18m	16km	22km	32km
TSF mid NOE flight	40m	22km	28km	38km
Helicopter in low altitude	150m	44km	50km	60km
Low altitude aircraft	500m	80km	86km	96km
Aircraft cruise flight	3Km	195km	201km	211km

※This diagram shows the distances where the Laser class's attack is physically able to reach, assuming a flat, spherical Earth, and at sea level. On hills, the firing range is longer. The BETA needs to have acquired its target.

Reconnaissance and Detection Against BETA

Reconnaissance and enemy detection are considered to be of utmost importance in all military operations. However, aircraft, which had been the backbone of reconnaissance in wars between humans, had been neutralized in the blink of an eye, at the start of the war with the BETA. Without air power, how can mankind ascertain the movements of the BETA?

The effectiveness of reconnaissance and detection against the BETA varies greatly depending on the situation.

The most effective method is reconnaissance using satellites that are confirmed not to be targets of BETA attacks. However, as they are in orbit, some low orbit satellites that are capable of precise reconnaissance are not always conveniently in the right position, at the right time, as desired.

Complex observational nets consisting of geostationary satellites and reconnaissance satellites have been established over priority targets, such as hives, and the frontlines taking the brunt of the invasion. As of 2001, these include the British Coast, the Middle East, Kamchatka, and Japan. However, these are not flawless, and new effective reconnaissance methods are still being sought to respond to BETA that invade through the underground or across the ocean floor.



A satellite descends to the low orbit path to perform reconnaissance of the surface, and determine the scale and invasion routes of the BETA.

Underground Reconnaissance

From Operation Palaiologos, the size of a hive's stab was found to have exceeded all expectations. Mankind had to begin using Earth observation satellites to investigate hives and their ravaged surroundings, in order to prepare for future hive capturing operations.

As a result of these observations, many facts have been revealed, such as the link between the growth of a hive's monument and stab, as well as the phenomena whereby BETA avoid volcanic areas during their invasions.

Marine Reconnaissance

After seabed invasions were confirmed in locations such as the English Channel and the Mediterranean, mankind recognized the need to also perform reconnaissance on seabeds.

During the British mainland invasion of 1985, it was found that the BETA were mainly active at depths of up to 100m, though events such as the invasion of Japan in 1998 confirmed activity at depths of over 100m, and the crossing of the Strait of Gibraltar confirmed activity at a depth of 500m.

As of 2001, all imaginable observation equipment has been deployed in preparation of a BETA invasion. These include technology once used to detect submarines, such as chains of sonar listening posts, and acoustic measurement vessels. Other equipment used to prepare for BETA invasions include ocean monitoring satellites, marine research vessels, and seabed seismometers.

However, even now, the surveillance net against BETA at depths of over 1000m is not adequate.

In response for the need for seabed resources, mankind's deep sea probing capabilities have increased, but it is close to impossible to establish a surveillance line in the ocean surrounding Eurasia, since the detection ranges are so narrow. Some views proclaim that it is possible to adequately respond to BETA movements with observations focusing solely on the shallow waters surrounding deep areas. Therefore, only small, pinpoint observation nets exist, including Australia's net across Oceanic territory, the EU's net in the center of the Mediterranean, and one owned by the US surrounding the Aleutian Islands. Patrols are periodically conducted in deep ocean areas by seabed exploration vessels.

Currently, there are some BETA that have slipped through these observations nets and may have headed from shallow waters to various deep sea areas, though their specific actions or intentions remain unknown.

Tactical Reconnaissance

If broad reconnaissance using satellites is considered 'strategic reconnaissance', then 'tactical reconnaissance' is more focused on determining the enemy force's strength, as well as identifying the Laser classes present. A common form of tactical reconnaissance involves using UAVs (Unmanned Aerial Vehicles), and these have been the most effective way of confirming the presence of Laser classes. However, despite their usefulness, the attrition rate of UAVs has been extremely high, since if a Laser class was in fact present in the area, the UAV would immediately be shot down.

As a result, they have always been somewhat lacking in numbers on the frontlines. And so, a standard strategy for tactical reconnaissance during culling operations is to finish suppressive bombardment of an area before laying down equipment for vibration and audio signature detection. After this, small numbers of modified F-4 Phantom, F-15 Eagle, A-6 Intruder, and F-18 Hornet craft (reconnaissance TSFs) are deployed to infiltrate and gather information on BETA-controlled territory. During the 1980's, since combat zone control through the data link was not yet ready, there were cases where these reconnaissance TSFs performed simplified mission controls using their own communications and cruising abilities.

High Altitude Reconnaissance Aircraft

Much like reconnaissance satellites, High Altitude Reconnaissance Aircraft have often been used for strategic reconnaissance. However, like all other aircraft, these have been eliminated from the sky by the Laser class.

It was initially thought that these could still accomplish their missions by taking advantage of the Laser class's refiring time lag, so long as it travelled at speeds of Mach 2.5 and at heights of 20,000–25,000m, in the high sub-stratosphere. However, when a deployment of these were actually trialed in a hive reconnaissance mission, they were intercepted by countless numbers of the Laser class, and the mission ended with an extremely low survival rate of below 40%.

Because of this, interception of projectiles from space, as well as high altitude flight and bombardment missions, were all assigned to space operations, as they possessed HSSTs, reconnaissance satellites, and intercontinental ballistic missiles (ICBM). The high altitude aircraft were able to leave with their dignity intact, in US Air Force bases and museums.

Anti-BETA Forecasts & Irradiation Danger-Free Zone Alerts

Anti-BETA Forecasts are warnings that predict the movement of BETA in nearby areas, based on the statistical data gained from analyzing BETA activities.

This strategic information is announced every hour for the military, and four times a day for civilians. It predicts the distribution and invasion route of the BETA, as well as the restrictions on aircraft operation and jump unit heights. The military headquarters of each country is responsible for gathering this information about BETA movements from their reconnaissance satellites and frontline personnel. In Imperial Japan's case, the UN Pacific 11th Force HQ and the IJF General Staff Headquarters.

Furthermore, separate Laser Irradiation Danger-Free Zone Alerts are provided on the battlefields, as tactical information.

Level 5 Laser Irradiation Danger Zone
There is the possibility of Laser classes appearing in the specified zone, NOE flight is permitted at heights of 10m and below.

Level 4 Laser Irradiation Danger Zone
Laser classes have appeared in the area, but are outside of the Heavy Laser class firing range (40km)

Level 3 Laser Irradiation Danger Zone
Laser classes have appeared in the area, and there is the risk of receiving immediate attacks from within range of the Heavy Laser class (40km)

Level 2 Laser Irradiation Danger Zone
Laser classes have appeared in the area, and there is the risk of receiving immediate attacks from within range of the Laser class (25km)

Level 1 Laser Irradiation Danger Zone
Laser classes have appeared in the area, and casualties from laser attacks have been confirmed.

Human Tactics

Humanity faces a completely new threat in the form of the unimaginable numbers of BETA and the Laser class, which possess enough destructive power to render the concept of 'armor' useless. This section will explain the defense tactics employed by mankind to counteract this threat, such as culling operations, and operations at shores, inland areas, and rivers.

Culling Strategies

When discussing anti-BETA tactics, most of the attention is given to hive capturing missions, which are as tragic as they are bold. However, 'cullings' also have significant value, in terms of necessity and frequency, as these are attacks that are seek to eliminate the BETA surrounding hives, in order to prevent a hive's growth.

The Fear of the BETA's Numbers

Large-scale BETA invasions occur when BETA 'groups' that dot the hive's surroundings are pushed out by new BETA emerging from the hive.

The scale of a group varies based on the situation, though there have been cases of these groups reaching brigade scale or even corps scale. Groups of this size pose the greatest threat for defense lines.

Furthermore, once the rate of groups being pushed out becomes frequent, due to the numbers of BETA around a hive reaching saturation, they begin their long-term invasions to seek new territory to construct hives.

Since the mid-90's, where this 'Hive Saturation' model was recognized, combat has focused on actively attacking the BETA to adjust their numbers, in order to prevent the propagation of hives.

Main Tactics

Culling operations are similar to the first and second stages of a hive capturing operation, since they involve temporarily infiltrating enemy territory rather than intercepting the BETA invasion.

Hence, the main forces used are artillery units and fast tactical armored forces. In cases where there are many Laser classes in the area of operation, low orbit fleets will sometimes also take part in the operation.

These are nearly identical to how hive capturing operations progress as well, since they commence with orbital bombardment from a low orbit fleet, and with artillery support, in order to cover the tactical armored forces. These forces then invade the operation zone and lure the BETA into range of artillery support, which eliminate the BETA, and this entire process is repeated.

During this, tactical armored forces are instructed to avoid close quarters combat with the BETA, except for self-defense, in order to minimize the loss of craft.

However, in cases where Laser classes survive these bombardments, the wear that is placed on the TSFs of the diversionary force is no different to that of a standard operation. In these cases, it was found that the rate of attrition was not noticeably lowered.

Often, the goal of the operation is to defeat a group of BETA roughly on the scale of a brigade or division, though depending on the progress of the operation, this can span over a few days.

The Problems with Culling

The frequency with which culling is conducted depends on the scale of the hive. At Phase 2, they can adequately be conducted five months apart, and by Phase 4, they can be conducted three months apart.

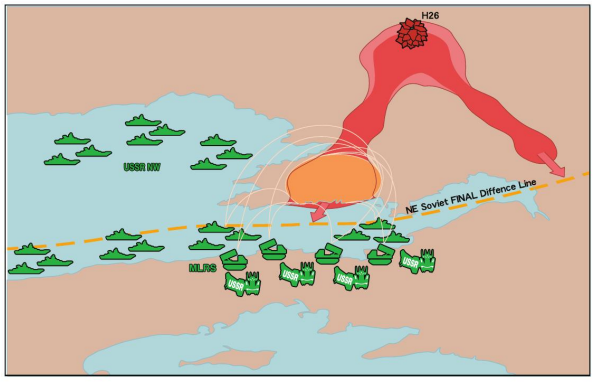
These statistics were gained from research and reconnaissance into the fluctuation patterns of BETA numbers.

However, these periodic, limited offensives have ended up as a large burden on humanity.

This is because most forces that could be accumulated for large-scale counter-offensives are instead used up by culling operations, leaving mankind hopelessly inferior in numbers, and without the capabilities for anything other than defense.

Having said that, if cullings were to be relaxed, the BETA would immediately swell in numbers and attack.

These routine culls and responses to small-scale invasions were definitely wearing down mankind's combat capabilities, and the breaking point revealed itself in the form of retreats from the fronts that could not hold back the large-scale invasions.



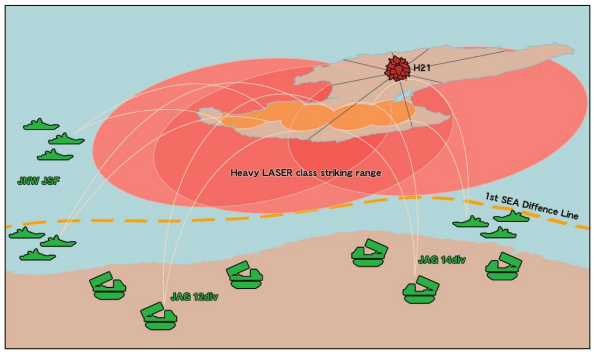
Far East Soviet Military Culling Operations

The Chukotka and Kamchatka Peninsulas, pressured by both the Verkhoyansk and Evensk Hives, have been designated as priority support targets of the UN, since they are integral in securing the safety of the North American continent.

The Soviet Armed Forces have also recognized the importance of this region as one of mankind's last remaining bridgeheads on the Eurasian continent. They have deployed forces to the Chukotka region to defend the Bering Strait Crossing, as well as to Kamchatka to defend the peninsula. Alongside these forces, the Soviet Union have established a Far East province to house the Anadyr Special Region Forces, as reserves. Overall, the Soviet Union have deployed over 70% of their total forces to the Far East.

The force primarily responsible for the culling operations is the Kamchatka Region Force. It consists of two artillery divisions, eight artillery brigades, and three surface-to-surface guided missile brigades, for a total of over 4000 indirect bombardment forces. Furthermore, the Soviet Union Navy's North Pacific Fleet is on standby for support.

With the construction of the Evensk Hive in 2001, Kamchatka has seen intermittent invasions from the BETA. However, as no Laser classes have yet to appear, it is clear that culling operations are functioning effectively, and the Soviet Union boasts that the Kamchatka Peninsula is an 'impenetrable fortress'.



The IJF's Culling Operations at Sadogashima

Not only was the Sadogashima Hive the one closest to inhabited areas, it was also a Phase 4 hive. Hence, it was a significant threat to both the Empire of Japan and the Far East defense line.

Immediately after the success of Operation Lucifer, The Empire of Japan planned to capture the Sadogashima Hive. However, as of October 1999, they did not have the ability to prepare a force strong enough to capture a Phase 3 hive. Furthermore, they needed to distribute their strength across the Kyushu region to prepare for an invasion from the Cheorwon Hive on the Korean peninsula. Hence, they adopted a strategy of confining the BETA to the Sadogashima Hive by conducting cullings using indirect bombardment.

As of now, in 2001, the IJMDF East Army Corp's 14th, 12th and 21st divisions, and the IJN's Sea of Japan Fleet are the main forces in this confinement operation.

The Space Force Orbital Fleet also participates if there are many Laser classes deployed around the hive.

The standard procedure is to shell the opposing shore from the coastal areas of Niigata. However, if bombardments alone are ineffective, orbital bombardments from a low orbit fleet, or deployments of the artillery's TSF escorts to the coastal areas of Sadogashima have both been considered.

Facing Large-Scale Invasions

Since ancient times, it has been said that in landing operations, the defenders are at an overwhelming advantage. This lesson hasn't seen any particular change in the Great BETA War, but neither has another unwavering truth - that numbers overcome all disadvantages.

Coastal Areas

The Extermination of Landing BETA by Simultaneous Attacks from Artillery and Naval Support

When intercepting BETA invasions in coastal areas, the most important concept is to exterminate the BETA in the shortest period of time by simultaneously counter-attacking as they land.

Hence, in regions where landings are expected, a considerable number of ground forces, as well as naval vessels including fire support ships and battleships, are kept on constant guard, prepared for a BETA landing.

Alongside naval vessels, artillery support also plays a central role in maintaining coastal defense. This support includes self-propelled guns and MLRS, both of which are capable of loading AL rounds, and can project significant firepower in a short period of time. On the other hand, armored forces and tactical armored forces are often assigned roles of mopping up the remaining BETA that survived the suppressive attacks.

In cases where the scale of the BETA invasion has exceeded expectations, these two armored forces also act as reserves, which preserve the front until support can arrive from other regions.

Below is a diagram of the coast of Niigata, Japan. It is considered to have the highest risk of a BETA invasion in the Far East, and will be used as an example on how fronts are established.

The IJN Sea of Japan Fleet and the UN Forces 8th Fleet assume the role of defending the center of the Sea of Japan, and are deployed to the Japanese First Sea Defense Line. As the strait between Sadogashima and Niigata is within range of Laser classes, submarine forces act as lookouts, and the main fleet is placed at distances of approximately 50km from the coast of Sadogashima.

This distance is close to the limits of effective bombardment ranges to both Sadogashima and Niigata.

As for ground forces, the IJMDF's 14th, 12th, and 21st divisions were deployed from north to south in that order.

There is approximately 100km between each division, and each have their main forces deployed on encampments approximately 30km from the coast.

When a BETA landing occurs, they work alongside the naval forces and conduct attacks on the landing points, to support the charge of tactical armored forces onto the battlefield.

Though there is a 100km distance between the areas each division is responsible for, this is a result of the IJF not having fully recovered from the losses from the mainland defense of 1998 and Operation Lucifer in 1999. Originally, a gap of only 30km was desired.

The tactical armored forces are sent to deal with any BETA not suppressed by attacks from either the naval bombardments or the ground forces.

During this, the continuation of suppressive attacks is determined by the number of remaining Laser classes, and the scale of the group of BETA as a whole.

If it is a group on the scale of a battalion–regiment, they can usually be suppressed with bombardments alone. However, for a group of the brigade–division scale, a tactical armored force will be required in most cases.

It has been proven time and again that defensive battles on the coast offer an advantage to mankind, with the successful defenses of the British mainland, the Mediterranean islands, and the Kra Canal as testaments to this. In comparison to inland areas, coasts can easily receive naval support, as well as the standard ground forces, and it is also easier to limit the region of combat.

IJF Combat on the Niigata Front

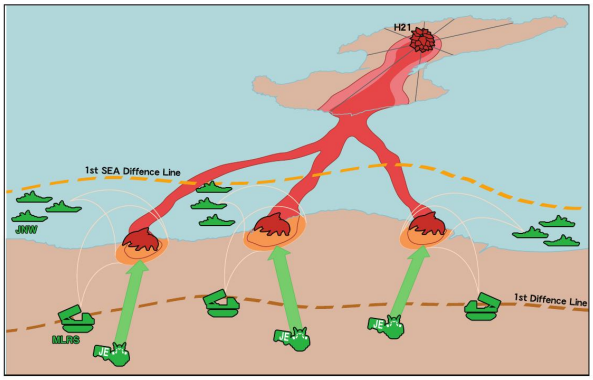
The defense of Niigata started on November 11th, 2001, when the IJMDF and the Imperial Japanese Eastern Army intercepted a brigade-scale group of BETA that had moved southwards from the Sadogashima Hive.

Normally, sporadic raids by BETA occur on company–battalion scales. However, there have been rare cases, such as this defense, where they have expanded to a regiment–brigade scale, and attacks of this scale prove difficult to respond to.

In this case, a brigade-scale group of BETA (5000-6000) emerged from the Sadogashima Hive and advanced into the ocean, and eventually landed on the Niigata coast. The Level 2 Defense Readiness that had been ordered by the IJF General Staff Headquarters on the previous day, November 10th, had paid off, since the 12th division succeeded in acquiring of the BETA immediately after they landed.

Furthermore, the 14th division received news of this while being moved into position as reinforcements for the Niigata region. They instead took a detour to attack the landing BETA from the side, creating the ideal combat situation of encircling and annihilating the enemy.

The situation would turn even more in favor of the IJF after the 21st division joined combat. The IJF, which had successfully surrounded the BETA with their three divisions, managed to destroy the brigade-scale group of BETA in just over two hours after their landing.



The Effectiveness of Ocean Attacks Against the BETA

How BETA conduct cross-oceanic invasions still remains unclear.

According to information gained during the defenses of the North Sea, the Baltic Sea, and the Mediterranean:

1. The BETA mainly cross ocean floors of depths up to 100m. When doing so, their formation resembles the kind used on flat land.
2. Although invasions through oceans of depths up to 500m are of lower priority, BETA activities have been confirmed at these depths.
3. When travelling in the sea, BETA temporarily cease activity at certain depths, when both submerging and rising.

Points 1 and 2 are assumed to be due to the limits of BETA's pressure resistance, whereas point 3 is assumed to be a response to extreme environmental changes, along the lines of what was observed during the Lunar War and Alternative 2.

Based on the results of investigations, research started in seafaring countries like the UK, the US, and Japan on methods of attacking BETA submerged at depths of up to 500m. Many weapons were prototyped such as modifications on preexisting anti-submarine torpedoes, submerged combat equipment for the A-6 Intruder, and even a super high-speed underwater missile with a nuclear warhead.

However, underwater explosives such as depth charges, torpedoes, and sea mines would have a stronger blast at the cost of a smaller radius, compared to the same amount of explosives used on the surface. Therefore, these were not suited as suppressive weapons against BETA spread across the ocean floor.

So as of now, the suppressive area is expanded simply by using more explosives, since it is difficult to direct underwater explosions, and since the BETA are distributed over a 2-dimensional plane across the sea floor.

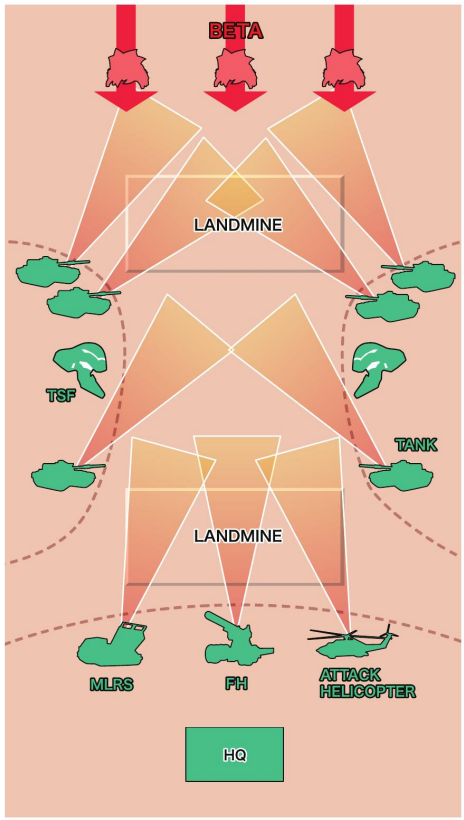
Attacks against BETA during their temporary stops at the set depth intervals (this process is assumed to be related to pressure resistance) are especially effective. Even so, there is still the problem of the effective area of explosives, and in principle, it is more efficient to attack BETA on the surface. The current situation is that attacks on the ocean floor are only conducted as support that thin the numbers before the BETA reach their landing point.

Furthermore, nuclear depth charges were considered as the ultimate addition to the underwater arsenal. However, only a few prototypes were made amidst concerns about radioactive contamination and its effect on marine life, which make up the raw materials for synthetic foods.

Unlike submarines, BETA only move across the ocean floor, so the most effective way to eliminate them is through the mass deployment of depth charges that settle on the ocean floor (although there are many ways to deploy them). Furthermore, bottom contact mines can be preemptively planted on the sea floors as defenses for areas such as straits, since these don't interfere with regular sailing activities.

On the other hand, bombardment is an adequate means of attack near coasts, where the water depth is less than 20m (BETA strain heights, for reference; Destroyer: 16m, Grappler: 12m, Fort: 66m). And since their invasion speed is slowed down through water resistance alone, it is common for surface suppression to be conducted using combined maritime and surface forces, as part of a coastal defense line.

Establishing Inland Positions



Preparations of Defensive Positions

The high caliber cannons of tanks are stronger than assault cannons of a TSF. As well as being effective against Fort classes, these are also capable of breaking the shells of Destroyer classes from the side.

The high initial velocity autocannons of self-propelled anti-aircraft guns are extremely effective against small strains of BETA.

Although armored forces (those which have tanks, or self-propelled anti-aircraft guns as their main force) are comparable to TSFs in individual firepower, their significant flaw is that they lack the mobility of TSFs.

Furthermore, their field of fire is limited, so in cases where armored forces are operated, the battle naturally shifts to one of defense, with the establishment of firing positions. Therefore, these forces have been given missions to intercept BETA that have slipped past the cleanup operations of TSFs and artillery support, from their pre-determined positions.

There are two reasons why they intercept from these rear positions, after TSFs have thinned the numbers. Firstly, armored battalions are at a slight disadvantage when fighting large groups of medium sized strains, like Grappler and Destroyer classes. Secondly, it is practically impossible for them to stop Tank, Warrior, and Soldier classes from slipping past and attacking from behind, which puts the armored forces in a very dangerous situation.

And so, for inland combat, the basic tactic boils down to TSFs as the main force using their mobility for both offense and defense, while being supported by artillery units, and with armored forces as the rear guards.



Inland areas

Focusing Firepower and Establishing Positions to Stop the BETA Invasion

While being a common sight in BETA War, combat in inland areas has always left mankind at a disadvantage.

In response to the BETA, which advance with their overwhelming numbers and speed, mankind combines their use of the TSF with the most basic of strategies—focusing firepower and establishing positions.

One important procedure when establishing a front is the preemptive placement of TSF, armored, and artillery support forces.

Because BETA prefer to invade through plains rather than through mountainous regions, it is important to place artillery support and armored forces in mountains, and to secure a retreat route to allow for a swift retreat should the front collapse. This is important as these forces are comparatively slower than TSFs.

Defense Lines with a Single Division

The ideal structure of a defense line involves placing a TSF squadron and a forwards alert point, approximately 100–120km away from enemy controlled territory, with the main force of a tactical armored regiment and an artillery regiment 25–30km behind them.

Furthermore, each tactical armored regiment should be responsible for a maximum length of about 30–40km of the front line, but for fronts such as ones in inland Eurasia, which are constantly burdened by a lack of forces, it was not uncommon to have a regiment-sized combat zone being covered by a battalion.

The actual combat procedure progresses in stages. Firstly, BETA positions are identified using acoustic and vibration sensors. Secondly, the invasion route and scale of the group of BETA is analyzed. Thirdly, suppressive bombardments are conducted, including those with AL rounds. Fourthly, tactical armored forces are deployed, and finally, any surviving BETA are eliminated with air support forces.

Obviously, this is nothing more than the ideal procedure, and in reality, situations are susceptible to change. For example, the BETA positions may not be ideal, forcing the TSF forces to rush in without having first received the preceding support bombardments.

However, one of the expectations made by people regarding TSF capabilities is that they could adapt to unforeseen circumstances such as this.

Tactics in Mountainous Regions

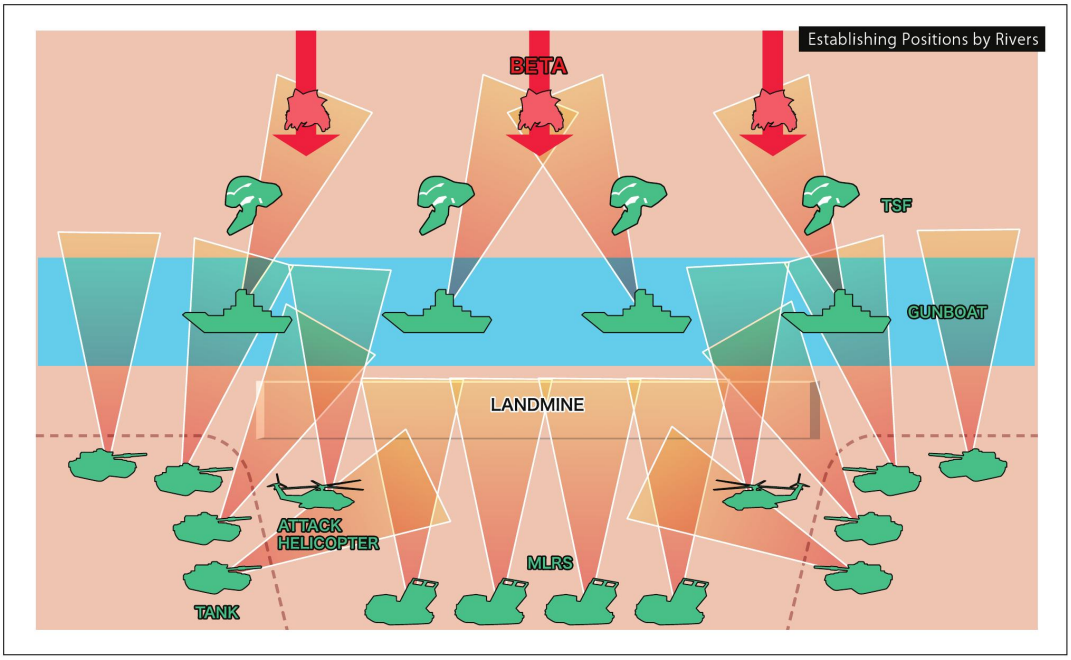
A military saying states that 'armies are drawn to hills'. Even in the Great BETA War, this holds true to a certain extent. High ground can serve as the most effective shield against Laser classes, and they also limit the abilities of Destroyer classes.

As even limited deployments of aircraft were possible to places such as the Sicilian islands and the Kamchatka coast, mountains have played a significant part in humanity's defensive strategy.

On the other hand, should the defense line collapse and BETA take the high ground, and especially if the Laser class has penetrated defenses, this same terrain transforms from being humanity's shield into a terrifying sword.

This is for the same reason hills have been sought throughout the history of conventional warfare. They allow further vision than on flat land, and this directly increases the firing range of the Laser class.

In order to prevent this, field commanders at defense lines of mountainous areas are given the authority to destroy the peaks of the mountains themselves, through artillery fire or pre-planted mines, if it looks like the mountain could fall into BETA hands.



Rivers

Defense Lines to Slow the BETA Invasion

Even before the Great BETA War, rivers have always been viewed as a strategic advantage for the defenders.

One such example has been demonstrated in the war between Germany and the Soviet Union, which was considered 'The Largest Ground War in History', where intense battles were fought over rivers such as the Dnieper, Danube, and Oder.

The strategic value of a river has still been recognized even during the Great BETA War.

Soon after the theater of war moved to Earth, humanity realized that the BETA slow down as they walk through bodies of water, such as rivers, and that there was also a time lag where they ceased activities while adapting to the environment in water of certain depths, such as straits. Hence, rivers and straits have been actively used as parts of defense lines.

The Importance of Rivers

From a strategic viewpoint, the main differences between inland areas and river areas are that fire support vessels such as gunboats can be deployed to rivers, rivers serve as a natural barrier against the threat of direct combat against BETA other than the Laser class, and rivers also limit the combat area.

The Soviet Armed Forces are particularly active in their use of river gunboats and they also deploy small fire support vessels loaded with Katyusha rocket launchers (BM-13/14) to their defense lines.

Restricting the combat zone also has a significant impact on the defense of the vast Eurasian continent.

Rivers can minimize the area of a front line that require tactical armored forces, and can also guarantee comparatively safe firing positions for artillery forces.

However, because the group of BETA is slowed, they become densely packed on the opposite shore.

If groups of this size were to attempt a river crossing all at once, the threat level would be of a far higher magnitude than a standard invasion. More so, if Laser classes gathered in dense groups, bombardments against them become ineffective.

From the reasons above, when constructing defense lines along rivers, the two most important points are to deploy forces to bends and narrows, where BETA are expected to cross, and to also develop a plan on how to stop them from crossing.

It is difficult to prepare enough firepower to oppose the BETA's numbers, but compared to inland defense lines, where a line's construction is more difficult, it is considered relatively easier to focus forces on river defense lines.

In order to further ensure an advantage, large-scale construction work to expand the width or depths of rivers has also been conducted, especially in geographically low countries that have many rivers.

Even straits can undergo this type of work, such as when the Kra Canal was excavated with nuclear weapons. Furthermore, in places such as The Netherlands, a defense net across the marshes and rivers, called the 'Water Line', was redeveloped, after having been abandoned prior to World War II. This significantly slowed the advance of the BETA, and contributed to the success of the European Withdrawal operation.

Do BETA Dislike Water?

There is a theory that states that the BETA fundamentally dislike water. This theory is based on how BETA generally conduct invasions across land, and only conduct transoceanic invasions against island nations such as the UK or Japan, or to other islands. Further support for this theory comes from how they had deployed a second landing unit to the American continent, which is across the ocean from Kashgar.

However, from observations up to now, a prominent theory is that BETA merely prioritize land, based on the convenience of extracting some kind of resource.

The pattern of BETA appearing to stop at bodies of water before walking through them, mirrors their standard invasion pattern, which uses a saturation in the number of BETA surrounding an existing hive as a trigger.

In fact, the current situation has shown that BETA activity temporarily stagnates while in straits, assumed to be for pressure adaptation, but there is no real halting effect seen in rivers.

The reason why it appears that BETA invasions stagnate at straits or at large rivers is none other than due to mankind's several advantages, including being able to deploy naval vessels on the appropriate defense lines, as well as mankind's tactical freedom gained from the BETA's decline in speed when advance through water.

During the invasion of the Japanese mainland in 1998, the BETA invaded while a typhoon passed over the Tsushima Strait, which was their ocean crossing route. Later investigations found several BETA in shallow waters near the coast, which had become inactive by being overturned or damaged. Hence, it can be seen that the BETA overcame the attrition rate brought upon by the typhoon by taking advantage of their numbers.

Such an action goes against their supposed 'propensity to avoid water', and as of now, the hypothesis that BETA dislike water has been almost entirely abandoned.

However, as exceptions, there have been cases where BETA have temporarily halted their invasion at straits, even against no aggressive opposition. This occurred in places such as the Red Sea Coast during the invasion of the Arabian Peninsula.

Some theories to explain this include how the Red Sea is both narrow and is a strait with an average depth of 500m and trenches over 1000m deep in its center, and that these are beyond the pressure adaptation capabilities of BETA. Another is that the BETA had found some kind of resource worth extracting on the seabed, and so stayed there to recover it. A third is that the BETA had slowed down their invasion to focus on extracting the rich fossil fuel resources, such as oil, across the neighboring Arabian Peninsula. However, none of these theories have been verified.

These theories on prioritization of resources also act as the foundations for other theories on BETA invasions, such as how they somewhat mirror humans in how they form invasion routes based on securing resources. However, while the BETA had slowed down their invasion of the Arabian Peninsula, no such slowing has been witnessed in other oil-rich regions, such as the Caucasus, and currently, the events at the Arabian Peninsula only appear to be a coincidence.

At the very least, mankind's current defense strategy is based around simple geography rather than the distribution of resources.

Hive Capturing Strategies

Hive capturing is the greatest of humanity's goals and its most earnest wish in the war with the BETA. Hives, which are the production bases, supply points, and forward bases of the BETA, are the symbol of the BETA invasion of Earth. Once a hive is constructed, its surroundings become ravaged, with the ground becoming leveled, rivers drying out, and the earth turning barren. Furthermore, BETA spawn from hives at an overwhelming rate, and these are an absolute threat to inhabited areas nearby. Thus, capturing hives is a necessity when seeking to reclaim BETA controlled territory.

Overview of Forces Involved in Hive Capturing

Similar to how grand military forces were once needed to capture tightly defended forts and positions in anti-human combat in the past, hive capturing missions also require enormous military strength.

Operation Palaiologos (★ 1), the operation to capture the Minsk Hive, was the first of humanity's full-scale hive capturing missions. It was an operation of unprecedented scale (★ 2), with a total of over a million personnel and 20,000 combat vehicles. These came from the various armies of the European Union, the Soviet Union, and the Warsaw Treaty Organization, and were deployed across a front longer than 3000km.

Even after Palaiologos, these operations would involve the deployment of 500,000–600,000 personnel on average.

The reason why hive capturing requires this degree of force, is none other than to oppose the overwhelming numbers of BETA.

Firstly, groups of BETA emerging from the hive must be suppressed or lured out afar, and only then can forces infiltrate the hive's interior and destroy the reactor, in the deepest part of the stab.

Furthermore, an appropriate force must remain on the surface to prepare for counter-attacks by BETA converging into the hive from surrounding areas. When including the rear guard, which support these forces, the numbers of personnel deployed inflates to several hundreds of thousands.

Orbital Bombardment and Orbital Drop Tactics

Despite this much military strength, there are many cases where invasions are hampered by groups of BETA surrounding the hive, resulting in the failure to infiltrate the stab.

In fact, on the European/Russian front, several hive capturing operations were conducted after Operation Palaiologos, but most of these ended in failure.

To address the situation, orbital bombardments and orbital drop tactics were introduced over the late 1980's and early 1990's, and even as of 2001, they are still achieving outstanding results.

This tactic involves deploying AL missiles and TSF forces from low Earth orbit. It was revolutionary since it didn't push inwards from the outer edges of the hive while conducting suppressive attacks, rather, the entire area could be bombed until the orbital divers reached the monument, while allowing them to infiltrate the hive closer to the main shaft.





Vancouver Agreement

The Vancouver Agreement is an international treaty that gives the UN authority in the command of the war with the BETA. It was adopted in a UN security council resolution in 1979 and came into effect the same year.

The waste of forces was becoming a growing issue, ever since the crushing defeats in 1974 during Operation Honqui against the Kashgar landing unit (later the Original Hive), and in 1978 during Operation Palaiologos against the Minsk Hive, and the subsequent rapid expansion of BETA territory. The proponents against these wastes of forces were centered in the US and pushed for the UN to be given global oversight of anti-BETA combat.

Coincidentally, in the January of 1979, the G8 was being hosted by Canada in Vancouver, which was near the wasteland that was once Athabasca. With half of his nation reduced to wasteland, the Canadian Prime Minister's opening speech begged for cooperation and unity among all of humanity, and this played a major role in shifting public opinion across the world.

Afterwards, the UN Security Council held back from censuring the countries that had led the previous failures (China, Soviet Union, European Union), but they enacted policies based on the American idea, by forming the international rules of engagement against the BETA, and also by forming the anti-BETA UN Combined Force, based on Article 43 of the UN Charter. Furthermore, they founded the UN Chiefs of Staff Council, as part of the Security Council, as an organization to plan anti-BETA strategies. Overall, the UN had clearly announced its intention to carry out the war with the BETA under its leadership.

The following year, many national leaders gathered again in Vancouver to formally ratify the 'Treaty On Governing the Military Actions and Activities of States Against BETA', commonly called the Vancouver Agreement.

The agreement made it so that hive capturing operations required UN permission, it limited the anti-BETA right of belligerency to self-defense and collective self-defense, and it also stipulated that orders from UN joint forces would be prioritized during hive captures.

The agreement also forbade the invasion of other countries under the guise of hive capturing, and added provisions regarding the use of nuclear weapons and space forces, as well as provisions on UN ownership of any plunder. Essentially, it was an agreement that pushed international cooperation on all fronts.

Finally, after Alternative 3 revealed the BETA's capacity for learning, revisions to the agreement put restrictions on how self-defense was conducted.

It is said that one reason as to why the agreement and the preceding security council resolution were conducted under US leadership was to ensure the US monopoly on G-elements, seeing as it had no hives of its own. Specifically, other countries would be deterred from conducting hive capturing operations to secure G-elements for themselves, and the US could deny other nations the opportunity to seize their own monopolies on G-elements.

The Chinese and Soviets saw through this, but did not veto the decision (though they did abstain from the vote). It is supposed that they did this since the UN General Assembly had hinted at a possible censure motion against them for their previous failures, and because they needed assistance from the UN Forces, due to the devastated state of their territories.

(★ 1) Technically, Operation Honqui was humanity's first hive capturing operation, but the common view holds that the first 'proper' hive capturing operation was Palaiologos.

(★ 2) If only the number of participating personnel was considered, the numbers of mobilized personnel were just behind Operation Cherry Blossom of 2002, and the European Reclamation of 2004. Even in the history of mankind, the only example that rivals this is the early stages of German-Soviet combat in 1941–1945.

Hive Capturing Phase 1: Orbital Bombardment

Outline of Orbital Bombardment

Orbital bombings and orbital drop tactics were repeatedly tested during the 1980's, and were even implemented in combat during the 1990's. These dramatically increased the maximum depths recorded during hive infiltrations, and have been considered necessary for hive capturing operations even as of 2001.

During hive captures, orbital bombardments are conducted ahead of any other attacks.

Firstly, many anti-laser shells are fired down around a hive's surroundings and form heavy metal clouds upon Laser class interception. This increases the chances of more bombardments from orbital, naval and surface forces (including rockets and long-range shells) to reach their target.

The Orbital Fleet On Standby

The AL shells loaded onto HSSTs in orbit are usually carried up to the orbital path in times of non-combat, and are stockpiled in orbital stations that rest in low Earth orbit, at altitudes of 400km.

Excluding certain transportation missions, the HSSTs that belong to the orbital bombardment fleet are generally on standby along an orbital path on Earth.

Once the decision has been made to conduct an orbital bombardment, the HSSTs remain on standby at orbital stations, and they fully stock up on unguided AL shells, which are stored in MRVs (Multiple Reentry Vehicles). Squadrons of 8–10 vessels are then deployed into a lower standby orbit position, one at a time, every 1–5 minutes.

At an altitude of 200km, a standard standby orbital period is approximately 90 minutes, and the time difference in each vessel's deployment spreads them out across the orbital path.

Due to this, it is possible to be flexible in regards to the timing of the bombardment, based on the progress of the operation.

Should a HSST pass its drop position before the order was given to commence bombing, it corrects its orbital inclination and is adjusted for a new drop zone after a full orbit.

Atmospheric Reentry of the Warheads

As soon as bombing begins, the HSST follows its leader's descent from standby orbit as they approach the drop position, and they descend into the upper atmosphere.

Once the destroyer reaches an altitude of 100km, where there is little atmospheric interference, they drop all of their planned number of MRVs at once. The HSST itself then reaccelerates to escape to its low orbit position.

The MRVs that are dropped function as reentry capsules, rather than as missiles, and they offset the deceleration caused by the atmosphere by accelerating their rocket motors to the fullest. Their goal is to maintain an orbital speed of over 7km/s while protecting the many AL shells they carry from the significant heat caused by reentry.



Reentry type destroyers (HSSTs) preparing for an orbital bombardment. The cargo mounted in the armored shell is exchanged depending on the mission. When conducting orbital drop operations, they are loaded with TSFs, and during orbital bombardments, they carry containers storing MRVs (Multiple Reentry Vehicles).

Furthermore, should any be intercepted by a laser at a high altitude, they immediately explode and disperse their AL shells, while turning into a heavy metal cloud themselves to support all following MRVs in reaching their target.

This is almost identical to the relationship between TSFs and reentry shells during the orbital drop tactics that will be outlined below. Once it reaches an altitude of 3000–4000m, the MRV releases its AL shells one by one, dispersing them over a designated area in the hive's surroundings.

The terminal velocity of these AL shells is almost identical to their orbital speed, at 7km/s, which is approximately Mach 20.

Although the Laser-class BETA will still intercept these hypersonic bombings with certainty, the objective of the first wave of MRVs is to create a heavy metal cloud by being shot down, so this should be expected.

In cases where standard naval bombardments or rocket attacks are used, a certain number of projectiles are destroyed by the Laser class in the small space between the heavy metal cloud and the target. However, any follow up orbital bombardments after the first wave are essentially uninterceptable due to their ultra-high speed.

The goal of this phase is to use these orbital bombardments to neutralize the Laser class.

As the terminal velocity of orbital bombardments is so high that even TSF can't avoid them, they are generally not conducted after surface forces are deployed.

Hive Capturing Phase 2: Suppressive Attacks



Surface Forces Engage

Artillery support forces are used to suppress the outer edges of enemy territory, once the Laser classes have intercepted the first wave of orbital bombardments, and the heavy metal clouds are concentrated across the combat zone.

Artillery support forces deployed around the hive's surroundings commence AL shell saturation attacks from outside the firing range of the Laser classes (beyond the horizon).

After heavy metal clouds are created by follow-up interceptions of the Laser classes, these forces conduct surface suppression to eradicate all Laser classes within a 50km radius of the hive's monument. They also maintain the density of the heavy metal cloud by periodically swapping between AL shells and multi-purpose shells.

These artillery support units engage in joint operations by using combat zone data links, and approach the monument while coordinating with the HSST fleet's second wave of orbital bombardments.

They mop up the not only the reinforcements of BETA that emerge to the surface, but also the Laser classes, and they support the assault of the tactical armored forces and the tank forces behind them.

The Strength of Artillery Forces

These forces mainly consist of multiple launch rocket systems (MLRS) and artillery units, both of which are self-propelled and work together with their TSF escorts. They concentrate their attacks in order to counteract the numbers of BETA.

Using Operation 21st as an example, a total of more than 800 MLRS and 400 self-propelled artillery units were deployed, from all participating armies. Almost half of the surface artillery combat forces owned at the time by the IJF,

the Far East UN Force, and the COSEAN Force participated in the operation.

In cases of hives near coastal areas, the surface forces are supplemented with support by naval forces.

Fire support vessels are the main force of anti-surface suppressive attacks. These are capable of moving at maximum speeds of 20 knots (37km/h) while being mounted with rocket containers, and they greatly surpass ground forces in both focus fire abilities and mobility. At one point, it was said that a single battleship's firepower could rival that of four army divisions.

Because of this, the presence or absence of naval forces has a significant impact on hive capturing operations. Eventually, from the lessons learned of the failures of conducting operations with only ground forces (failure in that the BETA deployed on the surface were not completely eradicated, due to a lack of suppressive firepower), the main forces of the IJN and UN Pacific Fleet would be deployed to both Operation Lucifer and Operation 21st.

Suppressive attacks consume enormous amounts of ammunition. For a hive capturing mission, approximately 2500 metric tons of ammunition is prepared for a single tactical armored division and 800 metric tons for a single battleship, with 60–70% of this amount being used up in this suppressive phase.

Were orbital bombardments of the HSST to be included, this number would rise to astronomical heights, with the rate of consumption of ammunition comparable to the stockpiled amount of a single nation.

Regarding the Use of Nuclear Weapons

Europe is one of the biggest proponents against the use of nuclear weapons, in order to prevent more destruction of the environment than what has already been ravaged by the BETA. After all, Germany was the only country to have experienced the strength of an atomic bomb in warfare.

Still, nuclear weapons have seen use in the Great BETA war, such as during the scorched-earth strategy of the China-Soviet coalition following the settlement of the Original Hive in Kashgar, or during the annihilation of the Athabasca landing unit by the US Armed Forces.

However, for hive capturing missions, the use of nuclear weapons raises many questions about their effectiveness and problems, so they are not expected to be used.

Hives have a tough and complex stab, so to destroy one from its roots would require more nuclear weapons than even those used at Athabasca. Such an attack would be unrealistic, considering the damage to the surroundings.

Furthermore, using an excessive explosive weapon in the closed environment of the stab has a high likelihood of inflicting serious damage onto the infiltration force, and the radiation is likely to negatively affect any following infiltration units. Because of this, the use of the S-11 (a non-nuclear weapon with destructive power close to a tactical nuclear weapon) is considered more appropriate than nuclear weapons, so long as allies have retreated.

The remaining possibility in the use of nuclear weapons is for suppressive attacks on a hive's surroundings. However, the radiation contamination around hives will not only significantly restrict the suppression forces that can be deployed after such an attack, but should the operation to capture the hive fail, the ability for mankind to establish fronts or use weapons around the hive again will be severely impacted.

Furthermore, there is the need to consider the negative impact radiation would have on nearby inhabited areas, and in the case of hives on the outer edges of Eurasia, the potential impact on the valuable marine resources.

Because BETA continuously supply reinforcements from within the hive, continuous firepower is valued over immediate destructive power. This has been dramatically proven by the circumstances of the scorched-earth strategy of the Sino-Soviet coalition, and is also the final nail in the coffin for the use of nuclear weapons.

That said, there is a limit to how many BETA can be lured out into the blast radius of a nuclear weapon, which sets a ceiling on the number BETA that can be killed by a single bomb. Another disadvantage of using nuclear weapons is that the amount of harmful radiation generated is too great, when considering the minuscule window of time that the bomb would even be effective; when eliminating the BETA reconverging to intercept the hive infiltration forces between the time when the hive is infiltrated, to when the reactor is neutralized. As a result, there have been no cases of nuclear weapons being used in UN-led hive capturing operations conducted after those of Kashgar and Athabasca.

Hive Capturing Phase 3: Surface Suppression

Infiltrations by Tactical Armored Forces

Once confirmation is received that the suppressive attacks have eradicated the BETA deployed to the surface, the operation moves to the third stage.

In this phase, the tactical armored forces, which are mounted on the landing fleet, enter the combat zone and engage in combat with the third wave of BETA reinforcements from the hive.

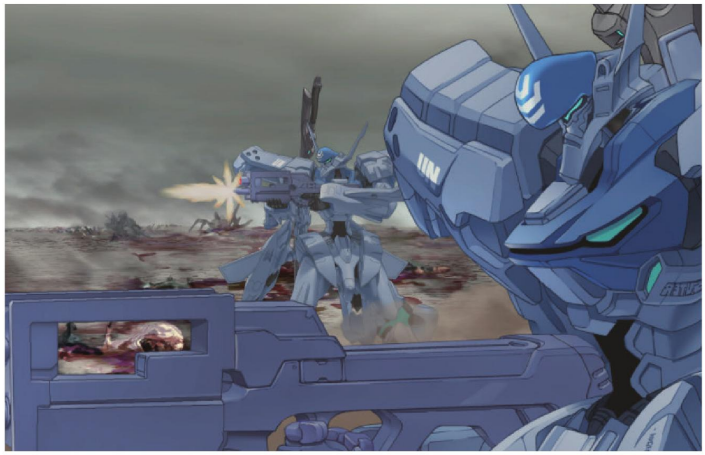
The forces advancing onto the battlefield are split into waves, and charge in from several directions, as if to conduct a pincer attack and split up the group of BETA's combat strength.

The tactical armored forces of the first wave act as individual squadrons and flank the enemy group from behind, while destroying any Laser classes that had escaped artillery suppression. During this, artillery forces support the first wave of TSFs.

The second and third waves of tactical armored forces engage in combat with groups of BETA, and are coordinated with armored tank forces.

These form a front to secure the safety of the artillery forces in the rear, and meet up with the first wave while moving the front to drag the BETA away from the center of the hive.

The focus of this stage is to secure the safety of the orbital divers, by pulling groups of BETA away from the hive's surroundings.



TSFs Used in the Assault

In the face of groups of BETA of a division-corps scale, the first wave units must consist of elite troops with cutting-edge TSFs, such as the F-15E Strike Eagle and the Type 94 Shiranui.

There have also been cases where the first wave of the attack included TSAs of the US Marine Corps and the IJN tactical armored forces, such as the A-6 Intruder and the A-10 Thunderbolt II, as well as the F-14 Tomcat and the F-18 Hornet used by tactical armored forces belonging to carriers. This is due to their strengths in storming into combat zones.

The craft used in the successive waves are mainly 1st and 2nd-generation craft, such as the F-4 Phantom or the F-5 Freedom Fighter.

Securing the Gate

Having successfully suppressed the surface BETA group, the invasion forces must then secure the gate, which is an entry point to infiltrate a hive, while they continue to defeat any surrounding BETA,

During this, gates that were not selected for infiltrations are either sealed with a thermosetting resin or surrounded by automated autocannons and some personnel.

The diameters of the gates' shafts increase closer to the monument, making them more suited for infiltrations by tactical armored forces, but since these also lead to higher incidence rates of BETA in the stab, they aren't always chosen as the infiltration gate.

Armored Units as the Main Strength of Surface Forces

The armored forces deployed in the second and third waves mostly consist of tanks and self-propelled anti-air guns, as well as a few self-propelled artillery units loaded with AL shells.

Armored units are inferior in mobility compared to TSFs, but tank guns (105–125mm smoothbore cannons are standard across each country), and anti-aircraft guns (20–40mm anti-air autocannons) are extremely effective against BETA, excluding the Fort and Destroyer classes. Therefore, they played an important role alongside TSF and artillery forces during hive capturing operations.

Landing Tactics of the Wadatsumi



The A-6 Intruder (Japanese designation: Type 81 Wadatsumi) is a TSA developed specifically for anti-BETA combat, and is being used by countries across the globe in the fight against BETA. It is considered a masterpiece, on par with the F-4 Phantom.

The Wadatsumi has roles include securing bridgeheads in landing operations against the BETA, mopping up BETA gathered along coasts during culling operations, and conducting pincer attacks using rivers when invading inland areas.

A characteristic of the A-6 is how it acts as a single unit alongside Swordfish-class submarine carriers.

The submarine carrier not only transports the A-6 to the landing point, but can use data links and satellite communications to observe the conditions of the landing point and its surroundings, before emerging from the water to support the landing point with suppressive fire from its rocket containers and cannon.

Their abilities in supporting the landing and checking the situation at the landing point mean that they can form a completely self-reliant landing unit when used in conjunction with A-6s, without any other external support.

A Wadatsumi's landing operations are normally conducted following suppressive attacks from the naval gunfire of vessels such as battleships.

However, BETA can sometimes deploy on coasts in ways that make it hard for naval support to approach. In these cases, an orbital fleet's waves of attacks, using warheads such as AL shells, can assist in the landing. Such attacks are coordinated to match timing of the assault landing, by using the floating sensors of the Wadatsumi and the submarine carrier, unmanned drones launched from underwater, and data links passing through satellite communications.

In short, the Wadatsumi is not only capable of exterminating BETA, but is also an excellent weapon projection platform. With these high levels of self-contained offensive abilities, the Wadatsumi became considered a masterpiece.

The Wadatsumi can assume a variety of patterns of operation, depending on the mission, but the standard process of a landing operation will be explained below.

1. Identification and Reconnaissance of the Landing Point

Firstly, the Wadatsumi forces gather information on the landing point by using nautical charts and satellite photography.

During this stage, if there is time to spare, the seabed near the landing point is checked by submariners, such as long distance reconnaissance groups and explosive ordnance disposal diver units.

These tasks should be performed as often as possible, since the Wadatsumi has poor vision while submerged.

2. Designating Landing Points

Next, each individual Wadatsumi in the operation is designated its own landing point.

This is vital for the smooth progression of their actions, since submerged Wadatsumis lack the agile movements of TSFs on the surface, and can't rely on much more than sound waves for information.

3. Coordination with Other Forces

Once the beachhead is secured, the units that landed must coordinate their next actions with other forces participating in the operation.
The battleships taking part in the operation provide suppressive fire prior to the landings, and the landing forces eliminate the inland Laser classes once they have reached the bridgehead. As both these forces play a vital role, they are carefully coordinated prior to the mission, and the Wadatsumi forces maintain communications with them during the operation.

As the entire process is considered a collaborative operation between these forces, it is not uncommon for them to be placed under a single headquarters.

4. Transportation to the Rally Point

The Wadatsumi craft then prepare things such as their ammunition and propellant for proceeding to the rally point of the landing forces.

Depending on the mission, this location is either offshore or at a harbor.

After final arrangements have been made with the various forces, they proceed to the landing point.

In most cases, a landing carrier or landing vessel with a well deck, accompanies the Wadatsumis, as these vessels are capable of resupplying them while on the ocean. However, only seafaring nations, such as the US, the UK, and the Empire of Japan operate these.

5. Advance to the Landing Point

The Wadatsumis advance alongside the submarine carriers to the ocean area before the landing point.

They begin their landing, under the suppressive fire of the battleships, and as this happens, the submarine carriers also take part in the attacks if necessary.

Because the Wadatsumi has high suppressive abilities on its own, one flight can be solely responsible for an area that would otherwise require two TSF flights.

This is also to avoid accidents between Wadatsumis travelling underwater, such as collisions before the landing point. And then, the Wadatsumis make contact with the landing point. Most accidents occur when the Wadatsumi's legs come in contact with the ocean floor as it transforms from its underwater form to its walking form.

This is caused by things such as the Wadatsumi's propulsion mechanism flinging up large amounts of sand when travelling without sufficient depths. This sand prevents the sensors from functioning to their fullest.

Furthermore, if a Wadatsumi runs aground while landing at these depths, they end up in a vulnerable state where they cannot fire, and they are helpless against the Laser class. This is the most dangerous situation possible.

6. Securing the Beachhead

The Wadatsumis that reach the land in one piece swiftly release all their guns and fire a curtain of bullets at anything they can, before switching their priority to the suppression of their designated area.

This is also when the submarine carriers conduct most of their attacks.

As a large craft lacking mobility and close quarters dogfighting abilities, the Wadatsumi exterminates the BETA with more consideration into cooperation with consorts and formations than TSFs do.

To secure even just a slightly larger suppressed area, a large amount of buckshot is loaded in the 120mm smoothbore cannon. Very few Surface Pilots use the low versatility APFSDS.

Furthermore, their tactics against Laser classes are differ to TSFs' tactics. As the Wadatsumi lacks a TSF's mobility, it fires an ALM if it encounters a Laser class. If the Wadatsumi itself does not have enough ammunition, it guides an ALM launched from the submarine carrier to snipe a targeted Laser class, but if this is not enough to exterminate them, naval battery fire can be requested.

In operations, such as culls, where retreats are permitted should the situation become too dangerous, they escape by re-submerging into the ocean.

This is an effective method of escape as there have been no prior cases of BETA attacking forces in the ocean.

The attrition rate of the Wadatsumi, always fighting on the forefront as the vanguard, is by no means low, even with all of these procedures in place. Even so, they are able to secure beachheads with an efficiency greatly surpassing those of landings using standard TSFs or combat vehicles.

7. Transferring the Beachhead

The beachhead is then transferred to the vanguard forces or TSF forces of the landing party that had arrived by methods such as using LCACs.

By this stage, the Wadatsumis have little remaining ammunition, so they normally withdraw from the front to resupply.

Furthermore, because it is possible that they might need to be redeployed, depending on changes to the operation's circumstances, they remain in a state of readiness after resupplying, until the end of the operation.



Hive Capturing Phase 4: Orbital Drop

An Overview of Orbital Drop Tactics

Like the previously mentioned orbital bombardments, orbital drop tactics involve deployments from space. These tactics form the basis of directly capturing hive interiors.

Initially, TSFs stored in reentry shells are deployed from the orbital path. In the final stage, the TSF breaks away from the shell, which acts as its shield for laser interception.

Since the shells go ahead of the TSFs, they are essentially an orbital bombardment in themselves since they can destroy parts of the monument or stab, and eliminate remaining BETA on the surface, by crashing into the region around the hive. By doing so, an infiltration point extremely close to the main shaft at the center of the hive, can be secured.

Parking Orbit of the Reentry Shell

Commonly known as the reentry shell, the 'atmospheric reentry use protection system' is used during orbital drops of TSFs. They consist of a reentry cargo shell, carrying two anti-laser, armored capsules.

Two single TSFs belonging to the Orbital Drop Corps are stored in each capsule, and they form the smallest TSF group, an element, before being carried into geocentric orbit by an armored destroyer.
The parking orbit is a low orbit path of approximately 300–500km.

The number of units placed in orbit at this phase depends on the scale of the operation. For example, in Operation 21st, which was second in size to Operation Lucifer, the entire UN Space Force Command's 6th Orbital Drop Corps was deployed. It was made up of two regiments for a total of approximately 200 TSFs. A high level of operational techniques was required to even bring that many TSFs, their destroyer transports, and the previously mentioned orbital bombardment fleet all into low orbit.

During this phase, BETA reinforcements are lured out from the hive by tactical armored forces on the ground. Once the diversionary operations have drawn these away from the hive, the orbital drop forces begin their reentry.
This greatly reduces the chances of orbital divers, as the vanguard of the hive infiltration, from encountering BETA inside the hive, as well as making sure that the ground forces aren't hit by the falling reentry shells, which are essentially a second orbital bombardment. This also buys time for logistics and communications lines to be established.

Reentry to Hive Infiltration

Firstly, the reentry shell removes the wired connections that supply it with things like power and communications from the HSST, as it prepares to enter deorbit burn.

During this phase, the right to command the reentry cargo shell is given to the in the higher position of authority (usually the senior TSF).

The HSST then conducts deorbit burn at a specified timing and reenters the upper atmosphere, where it separates the reentry shell at an altitude of 100km, which is the same altitude orbital bombardments are conducted at.

The separated reentry shell then continues to gently fall for 20km, to an altitude of 80km.

At this altitude, there is almost no influence from the atmosphere, so it continues to glide while maintaining a speed of Mach 20 as it passes through the ionosphere.

Although they pass through the skies over BETA controlled territory and over many hives, for some reason, there have been no cases where a reentry shell has been intercepted by hives, as was the case during the 'Triad Experiment'.

Once the shell reaches a horizontal distance of approximately 1000km from the target hive and an altitude of 60km, the atmosphere becomes denser, and air resistance increases.

If this vessel were a destroyer for transportation, it would begin severe deceleration here. On the contrary, reentry shells ignite their rocket motors and accelerate to full force, in order to offset the deceleration caused by the atmosphere, much like the MRVs used during orbital bombardments. By maintaining their speed as much as possible, they minimize the danger of laser interception.

At an altitude of 40km, it is difficult for the reentry shell to maintain hypersonic flight, since when it is loaded with armored capsules, it doesn't possess an aerodynamic form like that of MRVs or ALMs. Therefore, it detaches these armored capsules to become more aerodynamic.

Once separated from the armored capsules, the reentry cargo shell accelerates and maintains a speed of around Mach 7. It flies ahead of the armored capsules to shield them from the Laser class, and if it is not intercepted, it slams into the surface surrounding the hive as a supersonic, solid-mass bullet, in an attempt to create new infiltration points.

Conversely, the armored capsules rapidly decelerate after separating, due to the air resistance.

The maximum deceleration at this stage is 8.2G. In under two minutes, it decelerates to a supersonic speed of under Mach 3, and reaches an altitude of 2000m.

Once it has finished decelerating, the armored capsule separates from the TSF, and the empty shell goes ahead of the TSF before crashing into the surface.

On the other hand, the TSF's form prevents it from reaching supersonic flight, so it deploys air brakes to decelerate even more, and dives into the heavy metal cloud provided at an altitude of approximately 100–500m.

While passing through the heavy metal cloud, all communications and data links become impossible to use. Because of this, procedures such as reconfirmation of the assembly point after passing the cloud must be completed in the small space of time between separating from the armored capsule and entering the heavy metal cloud.

After passing through the heavy metal cloud, the orbital drop units begin functioning as standard TSF units.

It is common for the various TSFs to land in a scattered and disorganized fashion. Because this creates a risk of each TSF being individually destroyed, if faced with BETA reinforcements, TSFs will reform into squadrons prior to landing. They then commence assaulting the infiltration point, which can either be one opened by a reentry shell, or a planned gate. Finally, they proceed towards the first assembly location, which had been set inside the hive, where they reorganize as a battalion.

Hive Capturing Phase 5: From the Hive's Infiltration to the Reactor's Destruction and Escape

Infiltrating with Ground Forces

After the orbital divers reach their primary goal inside the stab, the tactical armored forces around the hive begin breaking in through a gate.

The mission of the second infiltration force is to establish the logistics and communications line for the orbital divers acting as the vanguards, as well as provide support and neutralization of the reactor.

During this phase, armored forces, such as tanks, remain on the surface alongside a small number of TSF force. This is to prepare for counter attacks from any remaining BETA and because armored forces are not suited to invading the stab.

Combat Inside the Stab

The two important concepts for moving in the stab are to avoid combat with enemy groups and to swiftly reach the main shaft.

Past combat experience has shown that Laser classes do not attack inside of hives, so TSFs are able to avoid combat and travel at high speeds, through movement techniques such as horizontal boosts in combination with bipedal walking.

Having successfully suppressed the group of BETA on the surface, the invasion forces must then secure the gate, which is an entry point to infiltrate a hive, while they continue to defeat any surrounding BETA,

In cases where combat cannot be avoided, the Destroyer, Grappler, and Tank classes pose the most direct threat to the TSFs.

Especially in drifts, where it is difficult to take evasive actions via boost jumps, close quarters combat with the BETA is extremely difficult, and so careful attention must be paid in selecting the invasion route through the hive.

During this stage, the support forces on the surface send resources into halls near their positions while the second infiltration force secures a logistics line along the route taken by the first force.

Supply containers are transported into the stab by TSFs specifically refurbished for this role, or by multi-legged transport vehicles that operate with a piston method.

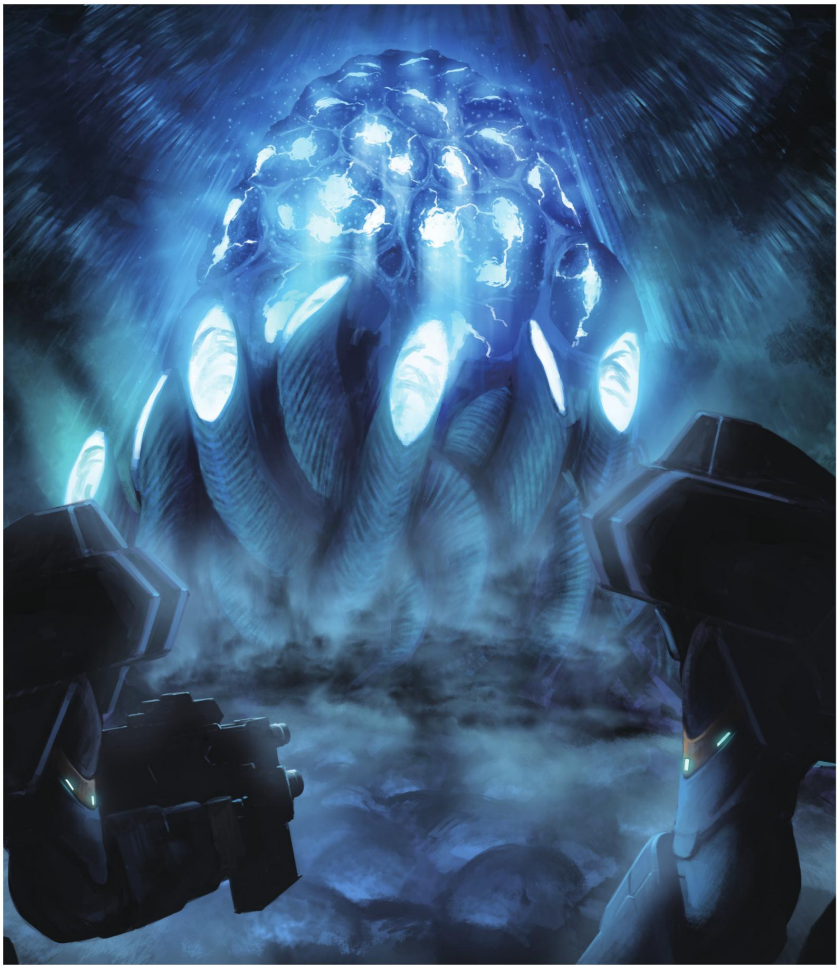
Infiltrating the Reactor Core

The TSF units that reach the main shaft descend towards the reactor, which rests at the deepest part of the hive, while shaking off any pursuing BETA.

Upon reaching the reactor block, the S-11s are set while any surrounding BETA are eliminated.

Generally, it is ideal to destroy the reactor with certainty, by arming the S-11s of all TSFs that have reached the reactor.

If the vanguard force succeeds in suppressing the reactor block, the second infiltration force changes their invasion route and heads to the atelier, the G-element



production plant, while pursuing their secondary objective of securing the G-elements.

In rare cases, there may be an emergency situation such as signs of a large-scale BETA assault converging on the reactor. If this happens, all units are immediately withdrawn, and the reactor is destroyed with any S-11s that have already been set.

According to one theory, it is said that the commander and the CP of the force that has neutralized the reactor are given the authority to detonate the S-11s regardless of whether or not allies have escaped.

Logistics During Hive Infiltrations

The difficulty of supplying the hive infiltration forces is raised as one of the reasons for the complete failures of past hive capturing missions such as Palaiologos and Swaraj.

The hive's stab is an intricate structure, like an ant's nest, and BETA are scattered all throughout it. It is incredibly difficult to raid one with weapons other than TSFs, which are capable of avoiding groups of BETA by their three-dimensional movement.

Furthermore, the consumption rates of propellant and ammunition within the hive interior are extremely high, and it is extremely difficult to resupply craft or recover defeated TSFs. Hence, the infiltration force can rapidly lose their combat potential.

In order to solve this problem, 'halls' are used as supply points, and these are located around the entry points opened up by the hive infiltration forces. Multi-legged transport vehicles, and transport TSFs (eg. refurbished F-4s) are used to transport supplies from the surface. As they do this, they also lay down a wired communications cable to attempt to establish a logistics and communications line.

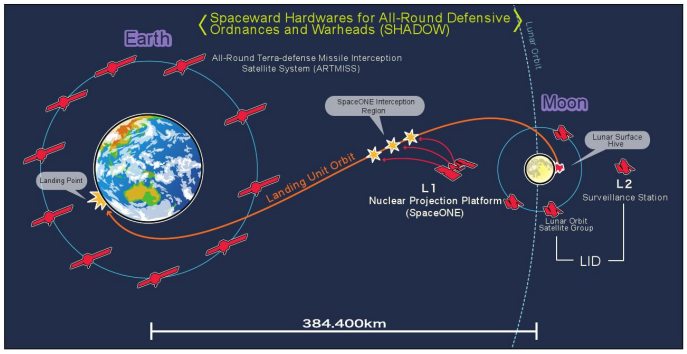
However, during more recent hive capturing operations, such as Lucifer, these communications would be severed by BETA, and this would isolate the infiltration forces.

This happened during Operation 21st, where tragedy struck when the orbital divers advanced before the supplies had arrived, and they were wiped out.

In the end, the problem of supplies is a result of the overwhelming difference in strength between humanity and the BETA inside of the hive. As a result, no policy to completely solve these problems has been established, even as of 2001.

Mankind's Space Forces

Other than orbital bombardment forces and orbital divers, which are used against surface BETA targets, mankind has deployed space forces to intercept BETA landing units launched from the lunar surface towards Earth.



Background

In 1974, just a year after the events of Kashgar, mankind attempted a space interception of the landing unit headed to Athabasca. This was to be achieved with nuclear weapons that had been deployed to geocentric orbit prior to the Great BETA War.

The Cold War, which preceded the Great BETA War, saw the geocentric orbit region become a fierce area of conflict between the US and the Soviet Union. Both nations deployed most of their existing nuclear arsenals along this orbital path.

Furthermore, progress was being made with the deployment of orbital reentry destroyers that could take advantage of things such as aerobraking to move relatively freely across the orbital path, as well as with the deployment of orbital military stations. These would later expand into the previously outlined anti-BETA weapon system, used against surface targets. However, these systems did not take into account BETA coming from outer space.

Only a year after a landing unit settled in Kashgar, and forces were withdrawn from the moon, a new landing unit was headed to Athabasca. At the time however, this second landing unit had only been hypothesized as a possibility, and with humanity's entire resource pool being allocated to the fierce combat in Eurasia, there was no room left to focus on space defense. Hence, they were forced to intercept this threat using only the preexisting space arsenal available.

Because of this, there was a lack of both early warning systems and orbital forces in deployment. As a result, no effective attacks could be conducted, allowing the BETA landing unit to reach Earth.

The US Armed Forces was later able to eliminate this landing unit through the focused use of strategic nuclear weapons, but this resulted in excessive damage to mankind, with 50% of Canada becoming uninhabitable due to heavy radioactive contamination.

Having faced the tragedies at Kashgar and Athabasca, mankind hurriedly commenced the construction of an interception system against landing units from the lunar surface. This project was formally led by the UN, but in practice, it was led by US Space Command.

The Orbital Path of a Landing Unit

From observations of the landings at Kashgar and Athabasca, it has been revealed that BETA landing units reach Earth's atmosphere in approximately 47 hours from the lunar surface.

In the final stages of its flight, the units can reach speeds of approximately 40,000km/h, which makes them too fast to intercept from Earth, when considering relative speeds.

However, it is known that once they leave the lunar orbit, landing units are set on a straight course, with no artificial adjustments (★1), much like a meteorite. This path is simple enough to be predicted, which makes it more easily intercepted immediately after leaving lunar orbit, rather than when it reaches its high speeds in Earth's atmosphere.

The interception system 'ARTMISS', as outlined below, takes advantage of these concepts to the fullest to maximize the time period it has to intercept the landing unit.

SHADOW: Spaceward Hardwares for All-Round Defensive Ordnances and Warheads

SHADOW was deployed by the UN Space Force and is primarily made up of the following three components:

1. The Lunar Intruder Detectors (LID) surveillance network, which is made up of lunar orbit satellites, and surveillance stations at Lagrange Point 2 (L2).

2. The Space Orbital Nuclear Engager (SpaceONE), a nuclear projection platform at Lagrange Point 1 (L1) (★2).

3. The All-Round Terra-defense Missile Interception Satellite System (ARTMISS), the final defense line, made up of nuclear weapons in geocentric orbit.

SHADOW pours all of its resources into early detection using the LID surveillance network and into interception near the lunar orbit path with SpaceONE. Interception in geocentric orbit via ARTMISS is only considered as a last resort.

This is because the speed of the landing unit reaches its maximum as it nears Earth, making it difficult to intercept. The only means of intercepting such a unit, which is more akin to a massive meteorite, is to use nuclear weapons at a scale far exceeding that of Athabasca. Hence, an interception near Earth would result in a deadly electromagnetic pulse hitting both the low orbit forces that had been deployed to combat BETA as well as any structures on the surface.

However, when conducting such a large-scale nuclear attack in a space environment, there is no atmosphere for nuclear blasts to bring forth their total destructive power. Hence, the destruction of the landing unit is difficult, even in space.

Attacks from SHADOW are geared towards diverting the landing unit's orbital path away from Earth, and so, all attacks from SpaceONE are focused on a single point of the landing unit's outer shell.

Furthermore, if lucky, a part of the outer shell can be destroyed, opening the way for attacks to penetrate the unit and deal damage to its interior. This acts to reduce the combat capabilities of the enemy, in the case they successfully land on Earth.

In cases where SpaceONE is not able to change the orbital path of the landing unit, ARTMISS, deployed to geocentric orbit, conducts further attacks.

At this stage, changes to the orbital path can no longer be expected, and the intention of the attacks is to capitalize on any damage dealt to the landing unit by SpaceONE.

The satellite group that forms ARTMISS is not under the direct control of the UN, rather, the rights to ARTMISS are secured by the international superpowers that possess their own space commands, as part of the SHADOW system.

This gives each nation an insurance against the possibility of certain nations firing SpaceONE towards Earth. This system as a whole was necessary to prevent a waste of humanity's resources, as nations would no longer need to construct their own orbital defense capabilities.

The Current State of SHADOW

SHADOW's construction began in 1975. From then until its completion in 1984, with the deployment of ARTMISS, it was constructed under the fear of having faced two successive landing units within a year of each other. However, the system was only put into use for the first time in 1989.

By 2001, it had conducted a total of three interceptions, and each time, it successfully diverted the flying object's trajectory away from Earth, using only attacks from SpaceONE. However, ARTMISS conducted further attacks from the Moon's perigee in order to make further adjustments to the objects' trajectories.

However, there is debate about whether or not these flying objects were in fact landing units.

SHADOW is officially used against 'all flying objects leaving the lunar orbit path that have the possibility of passing near Earth', so there is the undeniable possibility of the system misfiring against objects that may have been fired from the lunar surface, but that were directed outside of the solar system, rather than towards Earth. Due to this, many researchers have posed the question on whether this system really does eliminate landing units.

Furthermore, all of the flying objects that had been diverted away from Earth were carefully observed after the first interception, with considerations being made to use ARTMISS should these objects appear to return. However, they showed no signs of redirecting their orbital paths to return to Earth, and all three have been confirmed to have entered heliocentric orbit. Based on this, there are some theories that state that these objects were not landing units.

Estimates on the period of revolution for the new orbital paths of these objects are varied, ranging from between 60 and 300 years. Regardless, there is still a high possibility of these passing the near-Earth orbit again, so caution must be exercised regarding them.

Because of this risk, attempts to fire beacons into the flying objects have been made since the second interception, but these ended in failure due to their high relative speeds.

Another possibility that had been considered was that the landing unit would be directly launched to Earth from Mars, rather than from the lunar surface. However, expanding SHADOW to the orbit of Mars would require a massive increase in the size of the of the surveillance satellite net, and the precision of the interception system to counteract the increase in the relative speed of the incoming unit. Therefore, all that has been decided for now is that SHADOW will only be used as an improvised means to intercept a landing unit under such circumstances.

Since 1990, it is said that the US has equipped their satellites in ARTMISS with G-Bombs, but as the orbital deployment of G-Bombs would create many political issues, the truth behind the rumor has not been clarified.

★1 It is thought that the BETA landing unit triggers some kind of reaction function, which is considered to be gravity control, just before they land on the surface. This mitigates the impact of the landing.

★2 Although Lagrange Points L3 and L4 have more stable orbits, these have equal distances between the interception point and Earth's surface, so the closer L1 was chosen instead.



How is a BETA captured?

Capturing and maintaining the life of a BETA is vital in BETA research programs conducted around the world, such as the Alternative Plans. In order to do so, Alternative 2's achievement, a hypometabolizing enzyme, is used.

During the Lunar War era, BETA were observed to have temporarily ceased activity after breaking into human facilities.

This strange property greatly contributed to the defense of lunar bases, which were at an extreme disadvantage otherwise. It also provided a rare opportunity in offering samples for the early stages of BETA research, such as for Alternative 2, which was being conducted on the lunar surface, despite it being a warzone.

Results of several analyses and experiments revealed that this decline in BETA activity occurred due to the sudden change in pressure from moving into the base interior from the lunar surface outside. More detailed observations were performed after this phenomenon became apparent, and it was revealed that a similar dormancy could be observed, but only for a few seconds, in the shift between day and night on the lunar surface. This happened every fifteen days and created a difference in temperature of nearly 300 degrees Celsius (from -180C to 120C) (★ 1).

Furthermore, investigations on Earth conducted in the following years confirmed that the BETA had a similar period of dormancy at set intervals of water pressure, when travelling across the ocean floor.

As a result of this research, it was assumed that the BETA's dormant period was some kind of adaptive transformation in response to changes in their environment.

With this knowledge, it is possible to inject BETA with an enzyme that had been extracted from those captured on the Moon. This triggers the BETA's environmental adaptation response, and by performing successive injections of several adaptation responses before one reaction finished (for example, injecting the enzyme responsible for gravity adaptation, then one for temperature and so forth), it is possible to keep the BETA in a hypometabolic state for an extended period of time.

Despite its apparent usefulness, there are some problems associated with using it in combat. Firstly, the enzyme is difficult to produce, and secondly, it has no effect when sprayed as a mist, and so must be injected directly into a BETA, with things like tranquilizer rounds.

Other than tranquilizer rounds, which are primarily used by TSFs, it is possible to lure small strains of BETA into confinement, such as cages, and have personnel directly inject them. However, much like anesthetics used against life forms on Earth, the tranquilizer can only be used at a short range, and with low velocity. These conditions, coupled with the fact that they do not have an immediate effect, means that capturing BETA is extremely dangerous.

(★ 1) This phenomenon has not been observed as a result of rapid changes in temperature from attacks conducted on Earth, such as incendiary attacks. It is thought that rather than the magnitude of the change, it is the sustained change in environment that triggers the dormancy.

Anti-BETA Combat Before TSFs

How did mankind fight the BETA, before the appearance of the world's first TSF, the F-4 Phantom?

War on the Lunar Surface

During the Lunar War, which began in 1967, mankind was forced to fight in overwhelming disadvantageous conditions.

Space developments had provided large mass drivers to be used between Earth and lunar orbits, but it was still difficult to set up a logistics line that would be able to adequately support the overwhelmed lunar forces.

Although it was possible to detonate explosives even in a vacuum, these weapons couldn't yield their full blast effect without an atmosphere. As a result, the main method of attack was with shrapnel shells, which could fracture, or simply by using solid shells. However, both needed a large amount of metal, which were accompanied by high costs of transportation.

On top of this, the conditions on lunar surface itself were extremely severe. Threats included the vacuum, the 300-degree Celsius temperature difference between day and night every 15 days, the presence of cosmic rays and high speed particles, and the nano-sized, magnetic lunar sand (regolith), which would find its way into the joints of machinery. Together, these threats resulted in a higher failure rate of weapons, and electronic equipment, which increased the pressure on logistics.

The lunar surface saw the use of simple armored vehicles that were originally used as heavy machinery but had been modified on-site. However, as the Laser class did not exist at the time, and because BETA did not use ranged weapons, armor on vehicles served no purpose, and instead lowered their mobility. Therefore, it was not uncommon for the vehicles to be destroyed without putting up resistance, as they couldn't avoid the attacks of the rapidly approaching BETA.

This fact would encourage the creation of the FP weapon 'Hardiman', which would later become mechanized infantry armor.



Combat on Earth

The first time mankind engaged in full-scale combat with the BETA was during the invasion of Kashgar in 1973. The Chinese military led this battle, using a grand arsenal that humanity had accumulated up until then. They used everything from assault rifles to ballistic missiles and bombers. With these weapons, they were able to make progress against the BETA under favorable conditions.

Tanks and aircraft could not be deployed to the Lunar War due to numerous problems, but were extremely effective weapons against BETA on Earth. At this stage, almost no one expected humanity to lose on its home ground.

Since it has been known from combat in the Lunar War the BETA merely repeat a simple tactic of advancing, the Chinese military could coordinate their tanks and aircraft to almost one-sidedly crush the BETA.

Given that the BETA possessed nothing amounting to anti-air power, air-based weapons, such as aircraft and missiles, were extremely effective even against the Fort and Destroyer classes, which were difficult to handle with surface weapons.

Furthermore, even simple infantry forces could combat small BETA strains, so long as they had the proper equipment and ammunition, such as anti-tank rockets, automatic firearms, and IFVs (Infantry Fighting Vehicles) equipped with heavy machine guns.

Some records have stated that infantry forces accompanying tanks were able to defeat Tank classes and Grappler classes with several shots from an RPG-7.

TSF Positions and Formations

Organizational Units of TSF Forces

TSFs are the best weapon to use when closing in on and attacking BETA on any kind of battlefield. However, as a tradeoff for being so capable and versatile, they are extremely costly and wasting them is something that cannot be tolerated.

Initially, when TSFs began operation, most operators were transferred air force pilots, and so TSF maneuvers were based on aerial combat techniques.

There were almost no cases where terrain and cover were used effectively, and coordination between crafts was most often limited to being between only two TSFs.

This was understandable, given the training of the air force pilots, but their techniques were fatally flawed in anti-BETA combat, which is usually conducted in groups and on the surface.

Having lost air superiority to the Laser class, the only method of counter attack left for mankind was to crawl along the earth, yet these pilots did not know how to fight on the ground.

As a result, TSF forces, which had high expectations placed on them as new weapons, suffered significant losses. This prompted the military leadership to start giving these transferred pilots training as infantry, which would mainly conduct surface combat.

From this, the fundamental tactics of infantry started being hammered into all Surface Pilot candidates and trainees as part of the Surface Pilot curriculum.

In order to minimize the loss of TSF, and to raise the survival rates of Surface Pilots, the organization of TSF groups and the tactics of their use had been thoroughly researched ever since their first deployment to the front lines in 1975. Tactics from the army, such as those with armored tank forces and infantry, were combined with air force combat techniques, such as those with fighters. This established the tactics of TSF operation that are used today.

Organizational units were built off the smallest, an element, consisting of two craft. A flight consists of four craft, which is two elements, and three flights make a squadron. Each flight has its own flight leader, in order to reduce the burden on the squadron leader.

Headquarters consider a squadron of twelve TSFs as one unit, for no other reason than that a single flight could not oppose the BETA's numbers, as evidenced by the first deployment of TSFs on the central Eurasian front.

Furthermore, military history shows that a single commander can only directly command approximately ten subordinates at once, under intense combat conditions. Past this number, the commander's effectiveness tends to be greatly reduced.

The military leadership had always been disappointed by the combat results of lone flights of four TSFs. When considering offensive capabilities, they are incapable of dealing satisfactory blows to groups of BETA, and even on the defense they tend to be pushed back.

TSFs avoided being branded as specialized weapons used only for capturing hives once they started to cooperate between several flights, which had naturally begun working together on the battlefields.

An individual flight could be assigned a specific role such as close quarters dogfighting or sweeping support, instead of having a single flight engage in combat in all directions and at all distances. This increased their offensive and defensive capabilities, and as a result, the survival rates of TSF groups dramatically increased.

Using this composition as a base, it became possible to use various tactics and formations, through the effective cooperation between flights. This contributed to the rise in combat abilities of TSF groups.

More intuitive coordination of attacks and tactics were now possible. One such obvious combination is to have a flight with Strike Vanguard and Storm Vanguard equipment rush in and be supported by bombardments from a flight with Gun Interceptor equipment. Another example, which demonstrated how the range of tactics has been expanded, is in splitting a squadron in order to perform a pincer movement.

Finally, a squadron of twelve made formations function more effectively. These included offensive formations such as Arrowhead and defensive formations such as Circle.

A significant feature of TSFs are that they are highly versatile, especially since they can change their equipment to match the circumstances. By effectively combining their equipment and formation, alongside the organizational units of other groups, they are sent out to the front line as a flexible and highly adaptive force.

Unfortunately, there are few nations on the front lines that have a replacement rate of 100% in forces of a group's size or larger. Therefore, there are cases where large scale combat is conducted by merging participating units to form provisional combat teams.

Wing (Regiment)

A wing is formed from three groups, and is commanded by either a Lieutenant Colonel or a Colonel.

It is the largest organizational unit of all groups consisting solely of TSFs. By adding other forces such as armored tanks and artillery forces into a wing, it becomes a strategic organizational unit called a 'Tactical Armored Division'.

Divisions such as the 1st and 7th Imperial Capital Defense divisions of the Empire of Japan are unique organizational units, each consisting of three tactical armored wings. They are classified as strategic strike forces, to be deployed into vital situations.

The unit formation used by ground forces is called a Regiment.

Group (Battalion)

A group is formed from three squadrons, and is commanded by either a Major or a Lieutenant Colonel. It is uncommon for an entire group to act as one. In most cases, each squadron acts individually while maintaining enough distance so that mutual support is possible. A handful of formations were made specifically for groups, such as Wing-Double-Five and Fish-Scale-Three.

The unit formation used by ground forces is called a Battalion.

Squadron (Company)

A squadron is formed from three flights, and is commanded by either a Captain or Major. This is the minimum number of craft that can effectively use combat formations, and it is common for TSFs to move as squadrons when deployed into combat missions. Most TSF formations are designed for individual squadrons.

The unit formation used by ground forces is called a Company.

Flight (Platoon)

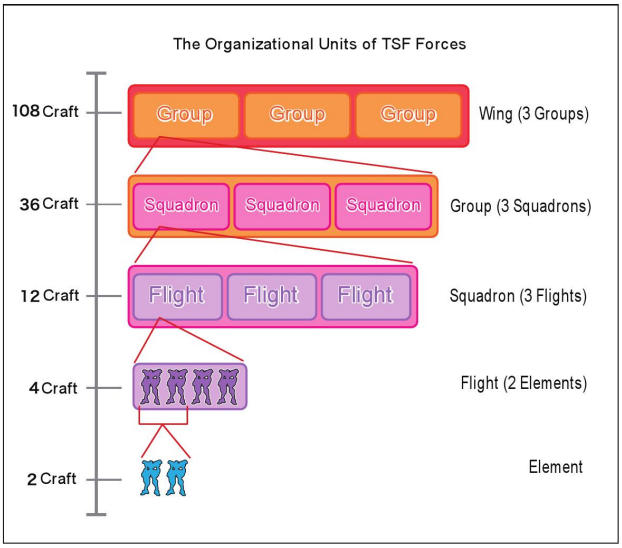
A flight is formed from two elements, and is commanded by either a Lieutenant or a senior 2nd Lieutenant. Positions such as Storm Vanguard and Gun Interceptor are often designated to single flights.

The unit formation used by ground forces is called a Platoon.

Element (Squad)

An element is the smallest organizational unit, made up of two TSFs, and is commanded by either a Lieutenant or a senior 2nd Lieutenant. Barring exceptional situations, TSFs conduct missions in pairs.

The unit formation used by ground forces is called a Squad.



The organization of forces, as mentioned above, is the international standard composition of tactical armored forces. The wing leader is also the leader of the first group, squadron, and flight.

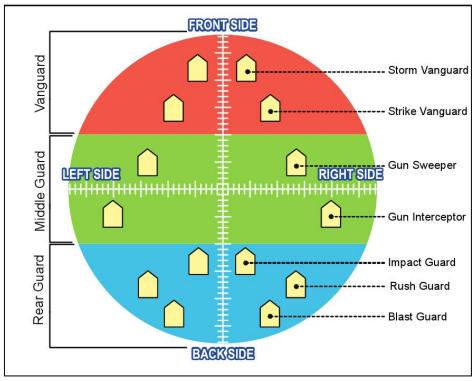
However, this system is not without its problems, such as with delays sending orders down each level of the chain of command. To combat this, there have been some cases where the wing leader and group leader were separated as independent positions, with each given a TSF escort of 2–4 craft to form a headquarters.

Further divisions also exist, including 'corps' and 'brigades'. Generally, these refer to forces that are one size smaller than a division, and they are considered a combined arms force, centered around one or more tactical armored wings.

Though the scale of these groups change significantly depending on the situation, they are commonly larger than a wing, though smaller than a division.

TSF Positions

The individual role, or 'position', assigned to a TSF is important when operating TSFs in groups of squadrons or larger. TSFs are usually operated in pairs, as an element, and positions refer to the supportive system beyond a mere element. While the BETA boast overwhelming numbers, they often only rely on a simple swarm tactic, and what has been demonstrated to work effectively against this is cooperation between positions, which is grounded in high level tactical theory.



Vanguard

Role such as Strike Vanguard and Storm Vanguard assume this position, and they conduct close quarters combat with dogfighting equipment.

Middle Guard

Roles such as Gun Sweeper and Gun Interceptor fall under this position, with their main task being the support of the vanguard.

Rear Guard

Role such as Impact Guard, Rush Guard, and Blast Guard take this position, and they support the entire group.

TSF Equipment

A TSF's equipment depends on the position they take. The vanguard mainly uses equipment specialized for close quarters dogfights, whereas the middle and rear guards use equipment specialized for long distance combat, since they mainly conduct support. The examples of equipment listed below are those used by A-01 Wing of the UN Forces at Yokohama Base.



Storm Vanguard

The Storm Vanguard is always positioned at the forefront of the unit. They carve a path into the enemy group by rushing in and assaulting them. Surface Pilots in this position must excel in maneuvering and close quarters dogfighting, in order to respond to close combat with the Destroyer and Grappler classes.

Equipment 1x Type 87 Assault Cannon, 2x Type 74 PB Blade, 2x Type 65 PB Knife 1x Type 92 Multi-Purpose Supplemental Armor
Notable Surface Pilots Shirogane Takeru, Mitsurugi Meiya, Ayamine Kei, Hayase Mitsuki



Gun Sweeper

A middle guard position, which takes on the role of suppressing small to middle sized strains of BETA (Grapplers and smaller strains). They also secure and expand the infiltration point opened up by the vanguard. Depending on the situation, they will also support the vanguard. Rather than dogfighting with a melee blade, their equipment focuses on suppression through simultaneous fire from four assault cannons.

Equipment 4x Type 87 Assault Cannon, 2x Type 65 PB Knife
Notable Surface Pilots Sakaki Chizuru, Suzumiya Akane



Impact Guard

A position that both escorts the rear guard and conducts fire support for the vanguard, by using their support cannon, which is an assault cannon modified for long range sniping. Surface Pilots in this position are required to conduct support while accurately monitoring the constantly changing situation, and hence must not only possess sniping abilities but also a high aptitude for situational assessment.

Equipment 1x Type 87 Support Assault Cannon, 1x Type 74 PB Blade, 2x Type 65 PB Knife
Notable Surface Pilots Tamase Miki, Kashiwagi Haruko



Blast Guard

The Blast Guard's position involves conducting area suppression during combat within a hive stab, as well as assuming anti-laser duties using small AL rounds elsewhere. Both shoulders are equipped with the Type 92 Multi-Purpose Self-Guided Missile System, but these negatively impact the craft's mobility, so it is common for craft in this position to be placed in the furthermost position of the rear guard. After firing the guided missiles, the Blast Guard purges its container and engages in support missions from the rear guard.

Equipment 2x Type 92 Multi-Purpose Self-Guided Missile System, 1x Type 87 Support Assault Cannon, 2x Type 65 PB Knife, 1x Type 92 Multi-Purpose Supplemental Armor
Notable Surface Pilots Yoroi Mikoto, Kazama Touko



Strike Vanguard

A vanguard position that also carves a path into the group of BETA, much like the Storm Vanguard. The main difference between Strike and Storm Vanguards is that the Strike Vanguard is equipped with an additional Type 87 Assault Cannon in place of the Type 92 Multi-Purpose Supplemental Armor. Therefore, it can be said that they focus on offensive capabilities even more than the Storm Vanguard.

Equipment 2x Type 87 Assault Cannon, 2x Type 74 PB Blade, 2x Type 65 PB Knife



Gun Interceptor

The Gun Interceptor is located in the middle of the unit and its responsibilities include supporting the vanguard and escorting the rear guard. Commanding officers, such as squadron or battalion commanders, are commonly assigned this position, since it requires mastery in both close and medium range combat, as well as high situational awareness.

Equipment 1x Type 87 Assault Cannon, 1x Type 74 PB Blade, 2x Type 65 PB Knife, 1x Type 92 Multi-Purpose Supplemental Armor
Notable Surface Pilots Isumi Michiru, Munakata Misae



Rush Guard

Much like the Impact Guard, this position conducts long-range sniping with a support assault cannon, but they are equipped with two Type 87 Assault Cannons in place of a Type 74 PB Blade. This is because the distinction between Rush and Impact Guards is similar to that of Gun Sweeper and Storm Vanguard. The former focuses more on suppression, while the latter focuses on dogfighting.

Equipment 1x Type 87 Support Assault Cannon, 2x Type 87 Assault Cannon, 2x Type 65 PB Knife

CP Officer

CP Officers are the personnel who conduct and support combat zone administration for the frontline units, and are also responsible for communications with other units. They operate from within military headquarters, located at the back of the battlefront.

They are formally called the 'Front Line Combat Zone Control Officer', but with recent developments in the data link system, they have expanded their responsibilities beyond that of the front line. Hence, it is the international norm for them to be called the 'CP Officer' as a reflection of their broader role.

In a standard TSF unit composition, one is assigned per squadron. Since their role is to watch over the movements of the unit, a common call sign for them among their unit is either 'Mom' or 'Papa'.

A CP Officer is expected to have a broad situational awareness, which allows them to not only watch over the units under their direct control, but to also grasp the relative positions of enemies and allies, and request support from other groups.

Because of this, they are required to complete a specialized Control Officer training course, along with the Surface Pilot Training Program. This position is commonly assumed by potential unit commander candidates, or ex-Surface Pilots who can no longer conduct frontline missions, due to injury or other conditions.

TSF Formations

Formations are one of the important elements in determining the combat capabilities of a group.

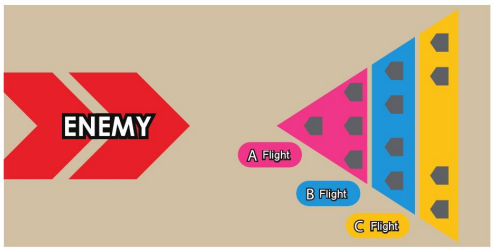
TSFs have the characteristics of both surface and air weapons, but when first deployed in 1975, they were operated by air force fighter pilots. From their background, and the fact that TSFs were only just starting to see use, these pilots only established fundamental formations such as V formations and columns, which had been adapted from the air force.

However, as more TSFs started appearing on the battlefield, they adopted the tactics of armored tanks and infantry units, resulting in a wider variety formations being used.

Offensive Formations

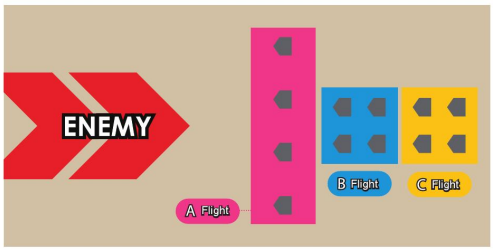
Wedge-One

This is the equivalent of the V formation, in air force terms. Much like Arrowhead, it is used for travelling in situations where enemy contact is expected. It is able to direct its firepower to the front and sides, and so is often used when approaching the enemy group head on. Wedge 'One' is symmetrical, whereas 'Two' is longer on either its left or right side.



Hammerhead-One

The vanguard lines up horizontally to make a formation that focuses on directing its offensive power forwards. Because it is easy to switch between this formation and Arrowhead, a basic tactic of TSF forces is to approach and attack the enemy in Arrowhead then decide to either break through them in formation, or switch to Hammerhead and press the attack.



Arrowhead

Vanguard units such as the Storm and Strike Vanguards are placed at the front of the formation, with other units lined up vertically behind them to form an arrowhead shape.

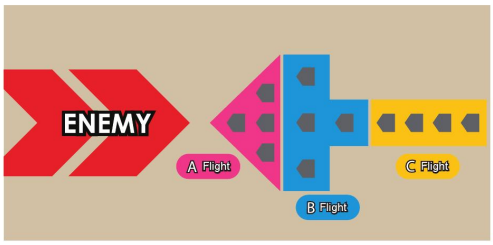
In this formation, the vanguard, which excels in offensive power, cuts open a breach point in the enemy formation, then the following craft push up to capitalize on the damage caused by the vanguard.

It is often used when attacking, and it is no exaggeration to say that it is the fundamental formation used by TSF forces in battle.

When conducting combat on the scale of either a battalion or wing, this formation maximizes its offensive power by having each squadron form their own Arrowhead, and mutually support one another.

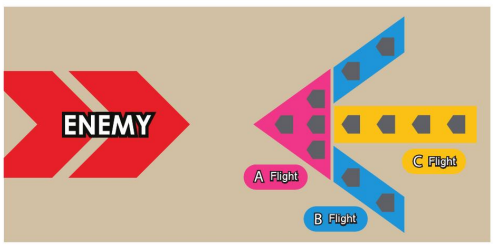
Arrowhead-One

A formation that focuses on penetrative power, and is used to assault enemy groups. It is used in a wide variety of settings, such as hive infiltrations, and counter attacks during defenses.



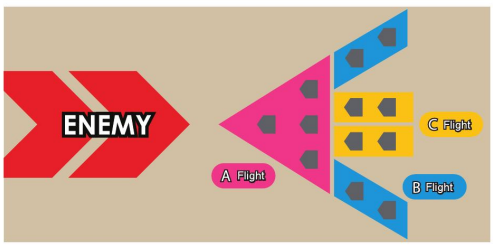
Arrowhead-Two

Compared to Arrowhead-One, this formation focuses more on the defense of the flanks. This shape is better suited than One for assaulting large scale enemy groups.



Arrowhead-Three

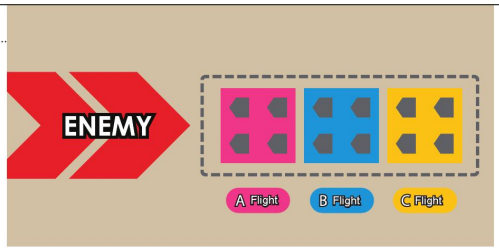
Compared to Two, this formation places even more emphasis on defense of the flanks.



Movement Formations

Trail

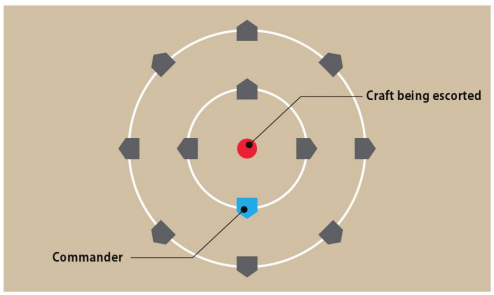
A formation mainly used for when TSF are moving as a group.
On the diagram, A, B, and C flights have vanguard, middle guard, and rear guard equipment respectively.



Defensive Formations

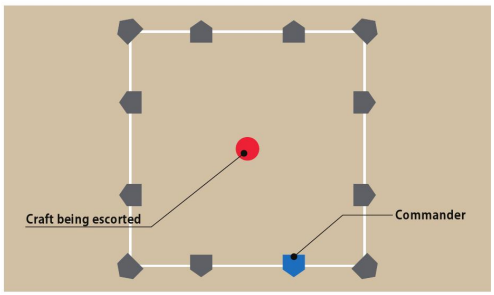
Circle-One

A formation with craft placed in two concentric circles. It is rarely used during anti-BETA combat, but is used during perimeter alert missions, under situations where sudden encounters with enemies occur. The defense target, such as a supply group or a damaged TSF, is placed in the center. The difference between Circle-One and Two is that Circle-Two assumes the same shape, but with all craft forming a single circumference and without a defense target.



Diamond-One

In this formation, craft are placed in a diamond or a square shape, and keep watch and attack the surroundings from all directions. Sometimes, when a square shape is taken, this formation is simply referred to as 'Square'. This formation focuses more on defense than Circle does, and during base defenses, it is possible to form a heavy net of firepower by combining several Diamond formations. Depending on the situation, a command unit or a damaged craft can be placed in the middle of the formation. Diamond-One assumes a square shape, whereas Diamond-Two assumes a diamond shape.

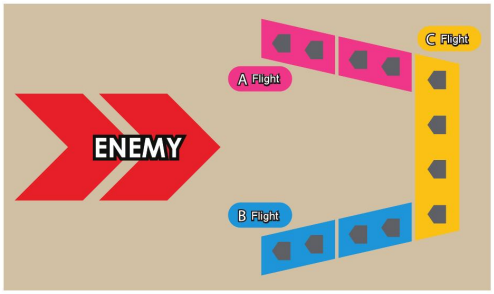


Wing

Wing formation is an inverted Wedge formation, whereby the wings of the formation stick out forwards. It focuses on defense, with the center of the formation acting to confine the enemy group, while both wings close in to lay siege to the enemy. This formation is not often used in anti-BETA combat, but can be used to great effect in harsh terrain, such as on mountains, or in valleys.

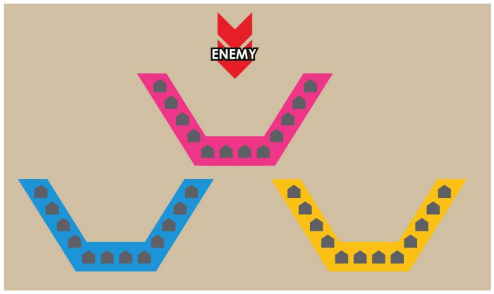
Wing-Three

When allied forces have an advantage in frontal military strength, Wing-Three can be taken as an offensive formation. A flight is placed on each wing, and one flight is placed directly facing the enemy to surround and eliminate them.



Wing-Double-Five

A large-scale formation made up of several squadrons in Wing formation.



TSF Data Links

Data links are an integrated distribution system for information and tactics. They provide the positions of friendlies and BETA near Surface Pilots, reconnaissance information of consorts, a wide combat zone map, and are also used to share TSF attitude control information.

However, data links should not be seen as a mere communications system used to gain information from back-end headquarters and command vehicles. Rather, they should be considered as a network system that seamlessly connects together 'nodes' such as TSFs, all other military platforms, computers, and sensor groups, through a set of data link protocols (DP). Furthermore, by having each node autonomously communicate, without a central control mechanism, they are highly resistant to interference, and have a very flexible operational structure.

■ Background to the Data Link Protocol

The foundation of the Data Link Protocol, which forms the basis of all current Data Links was created by the US Defense Advanced Research Projects Agency (DARPA), in the late 1960s.

It was originally being researched as 'SKYNET', a network that sought to cross-sectionally connect the surface communications net with those belonging to things such as satellites in orbit and lunar bases. However, with the intensification of the Cold War, and as the Great BETA War broke out, it became more oriented towards the military. Under its new name 'Universal Data Link Protocol', developments were started to turn this system into a communications net between aircraft, combat vehicles, and naval vessels, as well as to have it work in tandem with sensor groups.

■ Characteristics of Data Links

The main characteristic of the current iteration of the Data Link Network is that there is no central server, and that it instead relies on a peer to peer (P2P) network, where every node connected to the data link manually exchanges information.

Each node can become its own sensor and an information processing terminal that not only displays information of the Data Link Network, but can also autonomously exchange and display the analyzed results.

For example, a TSF automatically shares information it has detected with its sensors through the data link. Examples of shared information include vibrations and sound signatures, and heat source information.

Other units, such as tanks and other TSFs, can gather within this communication sphere and autonomously exchange and analyze the information, to accurately display the positions of BETA within a certain area. When information is sent this way, it does not need to pass through rear-end integrated processing.

This characteristic is most prominently featured in TSF actions when a Laser class begins its laser irradiation.

The instant a TSF's sensors detects a laser attack, it estimates the position of the heat source, and assumes that the laser originates from the BETA located within that estimated area, before raising the threat level. This information is then shared in real time to consort units, and the Laser class BETA responsible for the attack are displayed to them as priority targets.

This functions exactly the same as on other units, such as tanks and battleships (other than the system that TSFs possess to perform automatic evasive maneuvers), allowing the data link to function without issue, when used among combinations of different weapons, such as between tanks and TSFs.

Rear-end informational processing is essentially an upscaled version of data link technology. It gathers all data link terminals from TSFs, manned platforms such as tanks and naval vessels, unmanned aircraft, missile launchers, artificial satellites, fixed sensors, and even from the fortified suit feedback of individual Surface Pilots. All of these data links are treated a single, massive sensor that gathers information in real time, before sending the results of commanders' and operators' analyses back to each node (★ 1).

Generally, information from data links with more nodes is considered to be more detailed, and is therefore displayed at a higher priority. However, there are some exceptions where the automatic system prioritizes information only from within the flight or squadron. These include being in hive interiors, where communications are prone to being cut off and isolated, or in situations such as close quarters dogfighting, which require a higher degree of real-time information, such as BETA positions.

Furthermore, the communications are processed by having nearby nodes automatically conduct multiple relays. This eliminates the need for communications devices such as inter-TSF wireless networks, satellite links, or cables, and it has allowed for better communications to be established even in poor conditions, like in heavy metal clouds, or stab interiors, when wires haven't been laid (★ 2).

■ Disadvantages of Data Links and How to Overcome Them

As demonstrated above, data links allow various nodes to be used as information sensors, without needing additional input from personnel. However, the precision and capabilities of the data link system are limited by the processing power of each node, and the communication speed.

In reality, information communicated during large-scale combat becomes saturated and congested, and this results in delays of renewing information from wide-area data links.

In response to this, it is possible to set up data relay equipment in advance on defense lines, or use things such as multi-purpose shells to spread relay equipment across the combat zone during culls or hive capturing missions.

Full-scale data links, at levels that were viable for frontline combat, were not given to TSFs until the 3rd generation. This was due to the lack of capabilities of processing devices mounted on TSFs, as well as the inability to raise communications speeds between TSFs, which conducted advanced maneuvers on the harsh, frontline environments.

These problems were resolved by the development of faster processing devices, the multiplexing of radio frequency bands, and developing data compression technology. Even now, further improvements are being made.

Furthermore, by retrofitting processing devices and communications devices, it is possible for TSFs from the 1st and 2nd generation to take part in the advanced information processing network via the data link.



★ 1: It is from this rear-end processing that feedback from fortified suits can be so precisely recreated in Surface Pilot training simulators and JIVES. Essentially, information collected from combat is used in these training systems.

★ 2: During covert operations, it is possible to limit the targets and direction of communication. This allows for information to be received from HQ or nearby friendly units without it leaking outside of the TSF group.
The concealed line mode uses cryptographic processing, and there is no risk of these being decoded even when passing through other nodes. However, limiting communications by entering higher level security modes, can ensure the safety of the information with more certainty.

Weapons Used by Mankind in Anti-BETA Combat

The war against the BETA is total war, with the survival of all humanity on the line, and so, TSFs are not the only weapons taking charge. This section will outline some of the conventional weapons that have appeared in the Muv-Luv series. These are split into three groups: surface, sea, and air.



IJF
Shiranui Type 94 TSF

With the emergence of the Laser class, mankind's air power was neutralized in a single night, leaving them at the mercy of the BETA's numbers. However, many anti-BETA weapons have been developed to oppose them, and these are narrowly holding back the invasion. The TSF, in particular, is capable of three-dimensional movement while being versatile in its armaments. This innovative weapon has greatly changed the face of the army. However, the TSF is not a superweapon able to settle the war on its own, rather, it is merely a cog in the wheel of the entire military system. Its superiority is only apparent when used in combination with other branches of the army. It can be said that the emergence of this new weapon has increased the importance of other arms.

Surface Weapons

Tactical Surface Fighter

Since air power was neutralized, mankind was not able to respond at all to the advancing speed of Destroyer-class BETA with only surface weapons.

The weapons of the time had many limitations. Tanks could only move in two dimensions and they lacked movement speed, making it difficult to push through rough terrain. On the other hand, attack helicopters were limited by the number of weapons they could load, and could not engage in drawn out combat for long enough to combat the BETA's numbers.

These limitations saw the urgent necessity of a new weapon that had high-speed mobility, could navigate rough terrain by using both fuel-efficient ground movement and creeping flight, could sustain anti-surface offensive capabilities that weren't reliant on ammunition, and could flexibly adapt to different missions.

Eventually, the F-4 Phantom, a new, conceptual weapon with no precedent, was developed to reflect these required specifications.

The F-4 Phantom was developed by the NCAF-X Program as a collaboration between four branches of the US Armed Forces: The Army, Navy, Air Force, and Space Command. They used the structures and theories behind the large MMU (Manned Maneuvering Unit), which was originally developed for work in space environments. This new weapon was hailed as the savior since firstly, its arms, manipulators, and mounts gave it a versatility in armaments to deal with any situation, secondly, it was easy to resupply, and finally, it could be deployed to any terrain or weather by using bipedal motion and its jump unit.

This weapon was also able to overcome the limitations of its predecessors, by having the three-dimensional movement that tanks didn't have, and by having surface suppression abilities not available to attack helicopters. Its flexibility let it fill the gap left by air power, which had been neutralized by the BETA, and the TSF was adopted worldwide, instantly securing its position as a mainline weapon for

Mechanized Infantry

Mechanized infantry equipped with combat exoskeletons, which were developed from the Hardiman weapons that saw use in the First Lunar War. They display their abilities to the fullest in combat zones where TSFs can't be used either at all, or not as effectively. These include urban warfare, inside buildings, and in underground tunnels.

During combat on the surface, they mainly eradicate small BETA strains while assuming either base defense roles or when directly supporting armored vehicles.

Like bombardment support, mechanized infantry does not stand out as much, compared to the spectacular TSF, but they are still vital in anti-BETA combat.

Tanks

Federal Republic of Germany

Leopard 2



A 3rd-generation main battle tank (MBT), developed by West Germany as the successor to the Leopard I.

The crew consists of four personnel: the tank commander, driver, loader, and gunner.

Its main armament is a 120mm smoothbore cannon, and its secondary armaments are two 7.62mm machine guns.

As of 2001, the A7I (3.5th-generation), an anti-BETA specification tank, is being produced. It has anti-laser vaporization film over its heat-resistant armor and it has been adapted to the combat zone data link. Furthermore, it also has an automatic loading device, reducing its crew to three personnel, and it is equipped with a 55 caliber 120mm cannon.

The Leopard 2 is used not only by West Germany, but across all of Europe. It has even been called Europe's standard tank.

Many of these were lost in the BETA invasion of Europe, but production is still continuing in industrial zones that have been transferred to South America and Africa. They have been deployed to Yokohama Base as the main equipment of the UN 11th Force Base Security Unit, since many European armies were incorporated into the UN forces.

IJF

Type 90 Tank



A 3rd-generation tank, developed as a successor to the Type 74 Tank.

It is mounted with a licensed production of a Rheinmeitall 44 caliber 120mm smoothbore cannon, and its secondary armaments are a 12.7mm machine gun, and a 7.62mm machine gun.

There is no need for a loader, since it has an automatic loading device for its shells, so only three personnel crew the tank.

The BETA invasion of Earth commenced as the tank was being developed, so its designs are only somewhat reflective of anti-BETA combat, such as its supplemental armor and its automatic loading devices.

Since the improved '902' version, the tank has been adapted to the combat zone data link. Even as of 2001, it remains the mainline equipment of the IJF.

Soviet Union Armed Forces

T-80

A tank developed by the Soviet Union, based on their own T-64 tank. The main cannon is a 125mm smoothbore cannon, capable of firing missiles as well as shells. Its secondary armaments are a 7.62mm and a 12.7mm machine gun. Since it has an automatic loading device, it is only crewed by three personnel.

It can also cross the floors of water bodies by equipping a snorkel.

The T-80UM1 is a T-80 that has been completely refurbished to anti-BETA specifications

Its main points of improvement are the same as the MBTs of other countries, though it was also given another an additional notable piece of equipment: explosive armor.

This is similar to a large, anti-personnel land mine, since it detonates when a Tank-class BETA jumps onto it, sending countless metal fragments in all directions.

Western countries do not adopt this armor for several reasons. Firstly, it deals significant damage to the mechanized infantry accompanying the tank, and secondly, it lowers the mobility of the tank, since it significantly increases the tank's weight.

Armored Vehicles

French Army

VBL



The Véhicule Blindé Léger (VBL; 'light armored vehicle' in English), is a French four-wheeled light armored vehicle.

It is not only adopted by the French Army, but also by several other nations. It is mostly used for communications and reconnaissance missions.

It is able to float in water, and can traverse the water's surface by using the screw on the back of the vehicle's frame. Furthermore, it can mount various weapons, based on the mission's requirements.

As it has no designs specifically for anti-BETA combat, the crew equip a data link device that is the equivalent of a fortified suit, when operating the vehicle.

Swiss Army

Piranha

A Swiss-made light armored vehicle used by several nations across the globe.

It is depicted with eight wheels in the background of this image, though many types of the Piranha exist, from four to even ten wheeled variants. It also enjoys a large variety of weapons that can be mounted, from a 7.62mm machine gun, to a 90mm cannon.

Its uses are varied, such as being a command vehicle, or an armored transport vehicle.

Not only does it have basic anti-BETA combat specifications, such as being compatible with the combat zone data link, it is also able to select from a wide variety of equipment to best fit its mission.

IJF

Type 82 Command Combat Vehicle

The Type 82 Command Combat Vehicle is an armored wheeled vehicle adopted by the IJF in 1982. It is used for frontline command and communications.

During its initial stages of development, the Type 82 was referred to as a 'Command Communications Vehicle'. However, since it was fitted with a 12.7mm heavy machine gun as its standard equipment, to deal with small strains of BETA, it was renamed to a command combat vehicle.

Its main role is not only for frontline command, but also for informational support of old-fashioned vehicles and light armored vehicles that aren't compatible with the combat zone data link.

During the 12-5 Incident, it saw use as the command post for the 207th Platoon.

Self-Propelled Artillery/Self-Propelled Rocket Launchers

US Armed Forces

M2001 Crusader



Developed by the US, the M2001 Crusader is a self-propelled artillery mounted with a 155mm cannon.

It is crewed by three personnel: a vehicle commander, a gunner, and a driver. Its maximum firing range is over 40km.

It has an advanced automated system that controls processes such as loading, fire control, and ammunition management, allowing it to fire at a maximum rate of twelve rounds per minute. Furthermore, the amount of explosive charge used is automatically adjusted by the system, depending on the desired range.

It is also possible to have up to eight rounds reach a target simultaneously by adjusting the flight path of successively fired shells.

Furthermore, by using the vehicle's data link functions, several vehicles can coordinate their attack in such a way that multiple shells hit a target at the same time.

A Crusader is normally accompanied by a resupply vehicle carrying ammunition. Although the Crusader is not adopted by the IJF, it was deployed to Yokohama Base as part of the UN 11th Force's Base Security equipment.

US Armed Forces

MLRS



The MLRS (Multi-Launch Rocket System) consists of a self-propelled rocket vehicle (M270 Self-Propelled Launcher), rocket rounds as its ammunition, and a fire control and command system. These are the real main force in humanity's anti-BETA strategy on the ground.

Its development began in the US in 1971, with West Germany, Britain, France, and Italy later participating in its development. After it was formally adopted, it has been used by many Western Bloc nations, including Japan, and has even been deployed to Yokohama Base.

The M26 Rocket is the standard equipment of the MLRS, and it has a maximum range of 32km.

The M26 is loaded with 644 'M77 Miniature Bombs', which are dispersed in the sky, over the target.

The MLRS is also able to use several other rocket weapons, such as GPS guided rockets.

Its official position is as a rear-end support vehicle, so it does not have any laser countermeasures, such as heat-resistant armor, but it is fully equipped with standard anti-BETA combat specifications, such as the combat zone data link.

Soviet Union Armed Forces

2S19 Мста-S

A new self-propelled artillery developed by the Soviet Union to replace three obsolete self-propelled cannons—the 2S1, 2S3, and 2S5.

It is equipped with a 152mm Howitzer and a 12.7mm machine gun. The Howitzer's maximum range is 24.7km (28.9km when using rocket propulsion assisted rounds), and it is capable of firing 7–8 rounds per minute.

It can use a wide variety of rounds, including laser guided rounds, and it conducts coordinated and effective artillery support by using the combat zone data link. The S19 is deployed not only in the Soviet Union Army, but has also been exported to countries in the Middle East Coalition and the African Union.

The vehicle does not come with anti-laser countermeasures.

Soviet Union Armed Forces

BM-21 Grad

An Ural-375D cargo truck that has been fitted with 122mm rocket launchers. It is capable of firing 9M22 rockets, which have a maximum range of 20.4km.

Six of these vehicles are deployed in a single rocket artillery squadron, allowing for a maximum of 240 rockets to be fired at once by the squadron, in a focused area of 950m by 600m. As they were not only deployed to Soviet Forces but also to other Eastern Bloc nations, many derivative types exist, but most of these were lost during the BETA's invasion of Europe.

The crew operating it is equipped with their own data link device, since it cannot use the combat zone data link. The vehicle also does not come with any anti-laser countermeasures.

Self-Propelled Anti-Aircraft Gun

IJF

Type 87 Self-Propelled Anti-Aircraft Gun Kai



A self-propelled autocannon that was formally adopted by the IJF in 1987. It is equipped with two 90 caliber 35mm cannons, made by Swiss weapons manufacturer Erikon, and is crewed by three personnel.

It was originally planned as an anti-aircraft vehicle to shoot down aircraft approaching at low altitudes. However, the BETA invaded Earth during its development, so it was redesigned as a modern 'tank destroyer' from the lessons learned in combat in Eurasia, where self-propelled anti-aircraft guns were found to be highly effective against Tank-class BETA.

As well as having standard anti-BETA combat specifications such as access to the data link and anti-laser countermeasures, it has also had its radar and fire control devices changed to anti-surface specifications, and has had its ammunition capacity increased.

Soviet Union Armed Forces

2S6 Tunguska

A self-propelled, anti-surface attack system, developed as the successor to the ZSU-23-4 Shilka self-propelled anti-aircraft gun.

It is equipped with two 30mm twin linked autocannons, and two missile launching devices, each with four tubes (2x4 for a total of 8 missiles). The autocannons equipped on it are capable of firing 5000 rounds a minute, and the effective range of the system as a whole is 4000m.

It was originally designed as a self-propelled anti-aircraft system, but it was changed to have anti-BETA specifications during its development, and its main purpose was changed to anti-surface attacks. It forms a group with mechanized infantry, and usually takes on the role of mopping up small strains of BETA.

Its missile launching devices are multi-purpose, allowing them to be operated differently based on the mission, such as with AL missiles, or cluster missiles.

Naval Weapons

Although combat against BETA is primarily conducted on land, naval forces have still retained their importance. Obviously, they are needed to secure the sea lane of a strait during anti-BETA combat, but additionally, their ability to use the horizon as a shield against Laser classes has become increasingly important. During World War II, battleships were dethroned from the lead role to a supporting role, by the air power of aircraft carrier task forces. However, with the appearance of the Laser class, battleships would once again take the limelight as the star of the navy, by being an anti-surface marine battery able to operate with long range, high-powered cannons, and able to transport a significant amount of ammunition.

IJN

Yamato Class

1 Lead Ship Yamato
2 Second Ship Musashi
3 Third Ship Shinano
4 Fourth Ship Mino



Having withdrawn from the 'London Military Treaty', Japan constructed these battleships in 1936 using the best naval engineering in the country, so that the quality of these ships could oppose the sheer quantity of battleships deployed in the US Navy.

Their main achievement was in mounting three 46cm triple linked guns (for a total of nine) as their main battery. At the time, no other country in the world had achieved such a feat.

The lead ship, Yamato, and the second ship, Musashi, had been deployed since the beginning of World War II, but by that time, aircraft carriers and their aircraft had already stolen the battleships' spotlight.

Because of this, the third and fourth ships, Shinano and Mino, had their designs reviewed, since they were still being constructed during the early stages of the war. Several problems found on the Yamato and Musashi were rectified on Shinano and Mino. Furthermore, by reducing their armor, which was deemed excessive for its purpose of defending against 46cm guns (typically a battleship's armor should be able to defend against its own guns), they have secured enough speed to accompany aircraft carrier task forces.

At one point, the class had been reputed as being the 'extra baggage of the combined fleet'. However, during the latter half of the war, it became more difficult for aircraft to attack naval vessels due to advances in naval air defense tactics and anti-aircraft weapons. Since then, the worth of these ships was once again acknowledged as anti-air weapons to stop air forces from attacking vessels.

The class received additional anti-aircraft armaments and fought numerous, intense battles as escorts for aircraft carrier task forces. In 1944, when the war was lost, all four of the Yamato class vessels had suffered minor to moderate damage.

At the conclusion of World War II, battleships of the Nagato class and below were being decommissioned or requisitioned. As the few remaining IJN battleships, the Yamato and Yamato Kai class ships were then assigned the new duty of defending the Far East from the Communist Bloc during the Cold War.

This was actually a two-pronged strategy orchestrated by the US, whose goal was to also slow down the IJN's efforts in reconstructing a modern aircraft carrier task force, by having them preserve their battleships, which are notoriously costly to maintain.

In the early 1970's, the Yamato class, which had been refurbished as a missile platform, was mothballed as reserve vessels. It was thought that this would lead to the retirement of the class.

However, as the war with the BETA had broken out, and the battlefield had shifted to Earth, they returned to active duty.

After several refurbishments, they were given cutting-edge equipment, such as an anti-laser close-in defense system, a satellite data link fire control system, and laser vaporization film armor. Even at over fifty years old, they still serve in missions on the front line.

IJN

Yamato Kai Class

1 Lead Ship Izumo
2 Second Ship Kaga

During World War II, these were planned as the fifth and sixth ships of the Yamato Class, following the Shinano and Mino. However, while these ships were being constructed, the IJN suffered successive losses of flagship aircraft carriers in naval air combat against US forces. Hence, these ships were planned to be remodeled into superlarge aircraft carriers with full length flight decks.

However, their construction as battleships had already been well underway, and it was determined that converting them into carriers was more uneconomical than making one from scratch. Hence, as a compromise, they were constructed as aviation battleships, by having their third turret removed to make room for a flight deck and hangar to be added to the stern of the ship.

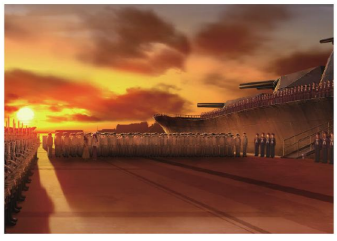
The usefulness of the class's aircraft capabilities had been questioned ever since it started construction. However, the class earned some degree of appreciation when its ships were given helicopters, which were rapidly becoming popular after being deployed to numerous skirmishes after World War II. And so, it became seen as an all-purpose class that took on artillery support missions.

After the outbreak of the war with the BETA, this class received significant refurbishments. It was given heat-resistant armor, multiple large missile VLSs (Vertical Launching System), and it employed an anti-laser structure that kept objects protruding from the hull to a minimum. It was also given the same anti-BETA improvements of the Yamato class. It now serves alongside the Yamato and Kii classes as part of the IJN's main force.

IJN

Kii Class

1 Lead Ship Kii
2 Second Ship Owari



The Kii class consists of cutting-edge battleships, created as successors to the Yamato class.

Construction commenced in 1941 in order to oppose the US Navy's Montana class. However, the Pacific War had ended before the Kii class was completed.

Approximately 60% of Kii's hull was completed by the end of the war, and it was planned to be scrapped and dismantled. However, Japanese and US opinions aligned, such that Japan wanted to hastily reconstruct the IJN, and the US wanted to use Japan as a barrier against the Communist Bloc, and so the ship was saved.

Once the US Navy agreed to assist, its construction resumed, and the hypothetical enemy of the ship became the Soviet Navy's Sovetsky Soyuz class. The lead ship Kii and the second ship Owari were finished in 1949, and 1951, respectively.

However, construction plans for the third ship Kai and the fourth ship Suruga were called off.

During the design stages, the plans were to mount three newly developed 50.8cm twin linked guns (6 barrels in total) onto the hull of a Yamato class ship. However, with the Montana class as a reference, changes to the design and expansions to the hull were made. The Montana had four triple linked 40.6cm guns (12 barrels in total).

As a result, the Kii became the biggest battleship in history, carrying four triple linked 50.8cm cannons (12 barrels), and with a displacement of 110,000 tons.

After its completion, the Kii-class vessels took turns at being the Combined Fleet's flagship. It later received several refurbishments, such as those for anti-air/anti-submarine missiles, as well as a helicopter deck. They were then transferred to the reserve and moored at Kure.

However, they were brought back into active service due to the BETA invasion of Earth in 1973. After being dispatched to the Indian Ocean in 1992, they received significant refurbishments to anti-BETA combat specifications over a year and a half, returning to the fleet in 1995. These refurbishments included satellite data links, an anti-laser hull structure, heat-resistant armor, and a guided missile launch system.

They have participated in and conducted ground support during numerous important operations since the BETA invasion of mainland Japan, such as Operation Lucifer and the Defense of Yokohama Base.

US Navy

Iowa Class

1 Lead Ship	Iowa
2 Second Ship	New Jersey
3 Third Ship	Missouri
4 Fourth Ship	Wisconsin
5 Fifth Ship	Illinois
6 Sixth Ship	Kentucky

The Iowa class was constructed by the US Navy as a new type of battleship not restricted by the London Military Treaty, since the treaty collapsed after Japan's withdrawal.

Its standard displacement is 45,000t, and it is equipped with three triple linked 16 inch (40.6cm) caliber guns (9 barrels in total). Although its guns are smaller than the Yamato's, it is designed to increase its firepower by adopting 50 caliber guns, which are longer than the Yamato's. Furthermore, its design focuses on high speed so that it can accompany aircraft carrier task forces.

During the Pacific War, it engaged in fierce combat with the IJN's Yamato and Nagato class ships, alongside its successor, the Montana-class battleship. The Iowa would prove its capabilities in missions such as aircraft carrier task force escorts, and island bombardments, in which it utilized its high speed.

After World War II, US national strategy shifted dramatically towards the direction of space development and establishing space forces. As this happened, the operation of battleships, with their enormous maintenance costs, was relegated to the Empire of Japan (as part of the Japan-US Security Treaty), which was America's most valuable ally.

At the time, all American battleships were essentially placed into the reserve, but they were brought back to active duty with the outbreak of the Great BETA War.

When returned to service, they were also given modernizations such as the ability to fire cruise missiles, as well as refurbishments to anti-BETA specifications.

After receiving their refurbishments, the Iowa-class battleships would spend most of their time under the command of the UN Force, in accordance to Article 43 of the UN International Charter, with The UN covering the costs of its operation. By serving as the backbone of the UN Naval Forces across the world in places such as the Mediterranean Sea, the Indian Ocean, and the Sea of Japan, the US could tout its international presence.

Soviet Union Navy

Sovetsky Soyuz Class

1 Lead Ship	Sovetsky Soyuz
2 Second Ship	Sovetskaya Ukraina
	(Requisitioned by the German Army during construction)
3 Third Ship	Sovetskaya Belorussia
4 Fourth Ship	Sovetskaya Rossiya

The Sovetsky Soyuz-class ships were designed to be larger than the Iowa class, with a full load displacement of 65,150t. Much like the Iowa class, they were equipped with three triple linked 40.6cm guns (for a total of 9 barrels) as their main armament.

Work on the ships commenced in 1938, though their construction was temporarily halted when the Soviet Union began prioritizing the expansion of their army, after the Axis powers declared war on them.

However, just before the Korean War broke out, soon after the end of World War II, the ships' construction recommenced in order to oppose the naval power of the US and the Empire of Japan.

Unfortunately, the Soviet Union was not experienced in constructing large naval vessels and they especially lacked knowledge in making large caliber naval guns. As a result, the construction of this class faced constant hurdles, resulting in delay after delay.

Even after they were commissioned, the class faced several problems, and they would also see no action, since most of the combat against the BETA was conducted inland. Plans to dismantle the ships were brought up many times.

However, once the BETA had advanced to the coast, the Sovetsky Soyuz-class ships took an extremely active role in supporting retreats of land forces, and they saved the lives of many soldiers and civilians.

Because of their role, the vessels became recognized as an integral part of artillery support for the Soviet Armed Forces, and are now responsible for the Far East Soviet Defense at the Sea of Okhotsk.

Although there were four vessels in the Sovetsky Soyuz Class, the second ship, Sovetskaya Ukraina, was requisitioned by the German Army during World War II, and the hull was later destroyed.

As a result, only three vessels were ever completed.

Other Naval Vessels

IJN

Mogami Class Heavy Cruiser

1 Lead Ship	Mogami
2 Second Ship	Mikuma

The Mogami-class ships are cruisers of the IJN. The lead ship is the third Japanese vessel to be called 'Mogami', and it was a large command cruiser, with a superstructure placement similar to that of the Yamato class.

This class mounted three triple linked 30.5cm guns as their main armament, on a hull with a displacement of just over 30,000t. It has command and communication abilities on par with a battleship, as well as the high speed and cruising abilities of a cruiser. Therefore, in Operation 21st, the lead ship Mogami devoted itself to commanding the operation from the rear, as the flagship of both the IJN and the Whiskey forces.

The second ship, Misumi, has a different appearance to that of the Mogami, since it was used as a test model for an anti-radar structure that was adopted during the construction of the Kii class battleship.

What is an Anti-Laser Missile?



The Anti-Laser Missile (ALM) is used in the initial stages of artillery support, to counter the threat of the Laser-class BETA.

Conducting bombardments with normal shells results in a majority of them being shot down by lasers, and even a saturation attack can be ineffective. AL shells do not have bursters, and are instead formed with a heavy metal, which consists mostly of a lead alloy.

Once the AL shell is hit by a laser, the high temperature makes it evaporate, creating a heavy metal cloud. The cloud is able to significantly decay lasers, and this makes it more likely for normal shells to find their targets.

If more AL shells are intercepted, the heavy metal cloud becomes denser, and this removes the threat of lasers for a longer period of time, and with more certainty. The shells that are not shot down can deal damage through kinetic energy, as they are solid shells.

Due to these reasons, bombardments using AL rounds are always conducted during anti-BETA operations.

Although it is a well known fact that heavy metal clouds significantly impact the environment and the life forms inhabiting it, there are no international restrictions on the use of AL rounds, as the entire world agrees that the threat of BETA outweighs the damage caused by these rounds.

Movements to forbid their use come up every now and then from environmentalist groups in places such as South America and Australia, but the reality of the situation is that there is no room to consider the 'luxury' of environmental impact.

Aircraft Carriers/TSF Carriers

US Navy

Nimitz Class

1 Lead Ship	Nimitz
(Refurbished into a TSF carrier from an aircraft carrier)	
2 Second Ship	Dwight D. Eisenhower
3 Third Ship	Carl Vinson
4 Fourth Ship	Theodore Roosevelt
5 Fifth Ship	Abraham Lincoln
6 Sixth Ship	George Washington
7 Seventh Ship	John C. Stennis
8 Eight Ship	Harry S. Truman

The Nimitz-class TSF carriers are super-large TSF carriers redesigned from the nuclear powered aircraft carriers of the same name, in order to enable the long term operation of just under two battalion's worth of TSFs.

The lead ship, Nimitz, was laid down in 1959 as the world's first mass-produced, nuclear-powered aircraft carrier, as an extension of the experience gained from the preceding class, Enterprise.

However, due to the US defense strategy shifting its focus to space forces as part of the Cold War, only the lead ship, Nimitz, would be completed on time. All of the following ships, which were about to start construction, became postponed due to the lack of investment in the Navy.

Although at one point, it was thought that the mass production of the Nimitz class was to be halted, the situation changed when the BETA invaded Earth, the Laser class emerged, and the new weapons, TSFs, were developed.

Focusing on force projection, the US saw that a TSF carrier was undeniably vital, since they could send, dispatch, maintain, and supply TSFs around the world.

The US Navy immediately commenced operational trials of TSFs on aircraft carriers, but within only a month, they concluded that they would not be able to achieve their desired outcomes without a carrier designed specifically for TSFs.

From here, the program to construct a TSF carrier gained momentum, and the construction projects for the successive Nimitz-class carriers, which had been shelved, were once again considered.

Over a period of several months, a newly formed research unit and an executive committee examined the equipment and designs required for TSF operation on carriers.

As a result, over 1500 redesign plans were proposed and approved, including those to reinforce the flight deck, adjust the placement of the catapult, renew the hangar and elevator's shape, add laser countermeasures, and simplify defensive armaments that were unneeded for anti-BETA combat. The second ship was laid down in 1976, with the successive ships following it.

Improvements that were developed during operation were implemented into successive ship designs, resulting in the vessels after George Washington being 10% larger.

Aircraft Carriers - Reborn for Anti-BETA Strategy

As the Laser-class BETA emerged, the activities of aircraft were severely restricted.

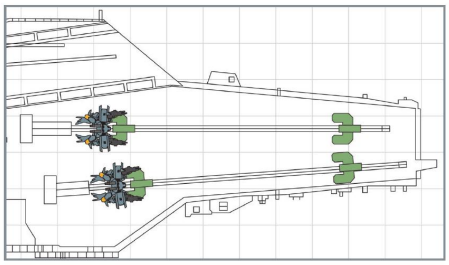
Due to this, the Navy, which had been using aircraft carriers as the backbone of their offshore forces, sought significant changes to their tactics and strategy.

During anti-BETA combat, carrier-based aircraft were relegated to support operations, having lost their role as the main anti-surface force to TSFs.

Although it is possible to operate TSFs from transport vessels that do not have flight decks, it is impossible to conduct expeditions into foreign waters or have force projection without support from vessels that have the functions and abilities of carriers, such as speed, command and control, and maintenance and supply.

Due to these requirements, aircraft carriers were reborn as TSF carriers through several, large-scale refurbishments.

The Nimitz Class's Catapult



A catapult allows aircraft to take off with only a short take-off length.

Generally, TSFs have V/STOL capabilities (Vertical/Short Take-Off and Landing) so they are able to leave a vessel without a catapult. However, a TSF can save propellant and take off from the ship faster by using a catapult.

As the diagram on the left shows, there are two catapults mounted on Nimitz-class vessels, allowing for two TSFs to be simultaneously dispatched.

Royal Navy

Queen Elizabeth Class (Formerly: CVA-01 Class)

1 Lead Ship	Queen Elizabeth
2 Second Ship	Duke of Edinburgh
3 Third Ship	Prince of Wales
4 Fourth Ship	Ark Royal

The Queen Elizabeth Class ships are aircraft carriers constructed by the UK during the 1960s. They have a displacement of over 60,000t.

They were refurbished into TSF carriers after the successes of the Nimitz class, but due to the limitations of their size, they can only carry a maximum of two flights of TSFs at a time.

The lead ship, the Queen Elizabeth, and the second ship, the Duke of Edinburgh, acted as the carriers for the 'Rain Dancers', the technology demonstration trial unit of the ECTSF (European Combat TSF Program). The Rain Dancers were organized by the British Ministry of Defence, with an additional sponsorship from Euro Fightas.

Queen Elizabeth and Duke of Edinburgh would later be organized into the UN Mediterranean/Atlantic Fleet. They would then fight across not only all of Europe, but also across Africa, the Middle East, and the Indian Ocean, alongside the trial TSF, which would later be named the EF-2000.

Royal Navy

Invincible Class

1 Lead Ship	Invincible
2 Second Ship	Indefatigable

This ship consists of small carriers with displacements of 22,000t. They were designed to take on operations where the presence of large carriers would be excessive, such as anti-submarine combat, and air support for landing forces.

Although four vessels were originally planned to be constructed, the third and fourth were cancelled, following the outbreak of the Great BETA War.

Much like other aircraft carriers, this class was also planned to be refurbished into TSF carriers. However, as they had small hulls, they were limited to carrying only a single flight of TSFs at a time. This brought the refurbishment into question, and a result, the full-scale refurbishment was shelved in favor of only a few TSF facilities, and refurbishments for anti-BETA specifications.

Following their refurbishment, they were positioned as support carriers to assist the missions of other TSF carriers. After 1995, they were attached to the ECTSF's technology demonstration unit, and carried its third flight, as well as an anti-surface attack helicopter force. They then operated alongside the Queen Elizabeth and the Duke of Edinburgh as one of the few task forces in the Atlantic Theater.

Landing Support Ships

IJN

Oosumi Class TSF Landing Ship

1 Lead Ship Oosumi
Takao
Ookuma
Kunisaki
Shimokita
Several Others

The Oosumi class consists of TSF landing ships, which have been deployed in large numbers by the IJN. They are 340m long and 66m wide. Their hull is plated with a heat-resistant armor, and is coated in anti-laser vaporization film. They are capable of transporting TSF forces of up to four flights.

The IJN does not deploy any real carriers, as they were required to maintain battleships as part of the Japan-US security treaty. Therefore, the IJN completed the Oosumi class as simplified TSF carriers, by appropriating the designs of supertankers.

The Tsushima class also exists as landing support rocket vessels that have been refurbished from super tankers.

The Oosumi-class ships are only colloquially referred to as TSF carriers, and they are formally classified as landing ships (which are very similar to transport ships). This is based on the fact that their support functions are limited to simple maintenance and supplies, making it impossible for them to conduct full-scale repairs, and because their navigation capabilities are not suited for expeditions into foreign waters.



Soviet Navy

Ivan Rogov Class

1 Lead Ship Ivan Rogov
2 Second Ship Aleksandr Nikolayev
3 Third Ship Mitrofan Moskalenko

These ships are assault landing ships of the Soviet Navy, capable of transporting equipment and personnel to form a single infantry battalion.

They have only received simple anti-laser refurbishments, and so they most often take on transportation missions of military supplies between the front line and the rear guard.

During 'Total Eclipse', the third ship, Mitrofan Moskalenko, was used to transport Argos Flight to the Kamchatka Peninsula.



During World War II, many rocket vessels were mobilized during large scale landing operations to bring down a rain of rockets onto the landing point. Later, the role of landing support would be assumed by aircraft, but with the emergency of the Laser class BETA, which made aircraft unusable, rocket vessels have once again taken on the role of landing support. Even during Operation 21st, many such rocket vessels were used as landing support ships.

Submarines

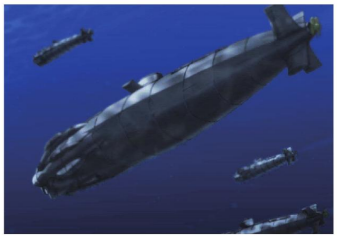
IJN

Type 81 Submarine Unit (US Designation: Swordfish Class)

A medium sized submarine, which supports long distance invasions of the A-6 Intruder, an amphibious TSA. They are support weapons that can conceptually be considered the 'jump unit' of the A-6.

It is possible to load a single A-6 into the bow of a Type 81 Submarine Unit, and use the submarine to approach the landing point, in order to preserve the TSA's operational time.

Furthermore, after the A-6 detaches from it, the submarine conducts landing support using its anti-surface weapons, such as rockets or cluster missiles, which are equipped to the vessel.





Air Weapons

With the emergence of Laser-class BETA, the concept of 'air superiority' became obsolete. However, this does not mean that aircraft have completely lost their effectiveness. Bombardments and transport using aircraft remain effective and efficient in areas where Laser-class BETA have been eradicated, or in areas where there is no threat of them. Furthermore, even in combat within Laser class attack range, attack helicopters, which are capable of creeping flight, can conduct desperate attacks against surface targets. On top of this, bombardments from satellite orbits using HSSTs are broadly classified as air-to-surface attacks.

Attack Helicopters

US Armed Forces

AH-64D Apache Longbow



The AH-64D Apache Longbow, with its Longbow fire control radar mounted on top of its rotor mast, is an improved version of the AH-64 Apache attack helicopter. The Longbow radar gives it significantly higher target detection abilities and reconnoitering abilities, compared to previous AH-64s.

It is mounted with a 30mm autocannon as its fixed armament, and ALM pods or rocket pods can also be mounted onto it. It is also used in various countries other than the US, such as the Empire of Japan.

Soviet Union Armed Forces

Ka-50 Chornaya Akula

A Soviet-made, single seat attack helicopter with anti-BETA combat specifications. By using coaxial rotors, it has achieved stable flight characteristics, which are unavailable to other attack helicopters.

Its tail rotor was omitted, since it is considered one of the greatest weaknesses of helicopters, by being easily attacked, and resulting in a loss of control if destroyed.

In exchange, the main rotor mast became extremely tall, resulting in the disadvantage of higher detectability. Though this fault had been pointed out in the initial stages of development, its merits stood out more, after its target of attack became the BETA.

Soviet Union Armed Forces

Mi-24 Крокодил (Crocodile)

A Soviet Armed Forces attack helicopter. Although later refurbished models have been adapted into the data link system, it has received no other anti-BETA specifications.

It is highly versatile, since it functions not only as an attack helicopter able to use both anti-surface missiles and rocket pods, but also as transport for a platoon of infantry. However, this makes it larger than a normal attack helicopter, giving it the disadvantage of lower mobility.

Transport & Utility Helicopters

Soviet Union Armed Forces

Mi-8

A utility helicopter that has seen prolonged use in the Soviet Armed Forces. As its production has gone on for a long time, it has seen repeated improvements, and has an extremely large number of variations. The Mi-8MT, which appeared in 'Total Eclipse', is one such variant, and is capable of transporting 24 personnel.

Soviet Union Armed Forces

Mi-26

The world's largest, practical transport helicopter, with a total length of 40m and a maximum take-off weight of 56t. It can carry up to 80 personnel.

Bombers

US Air Force

B-1 Lancer

A cutting-edge strategic bomber from the US Air Force, developed as a successor to the B-52 Stratofortress. It has variable swept wings and is capable of many varieties of flight, from ultra-low altitude flight, to supersonic flight.

At the start of its development, it was expected that over 200 craft would be made in order to replace the B-52, but with the outbreak of the Great BETA War, and the resulting decrease in the importance of bombers, procurement was halted at 100 craft. Models produced close to its discontinuation were modified to the B-type, which added anti-BETA specifications and omitted any features not needed for anti-BETA combat. The A-types, which had already been deployed, would be refurbished one by one.

As of 2001, the B-1 has seen focused deployment in North American Air Force bases, alongside the B-52, in preparation for the BETA's crossing of the Bering Strait.

Soviet Union Air Force

Tu-22 Shilo

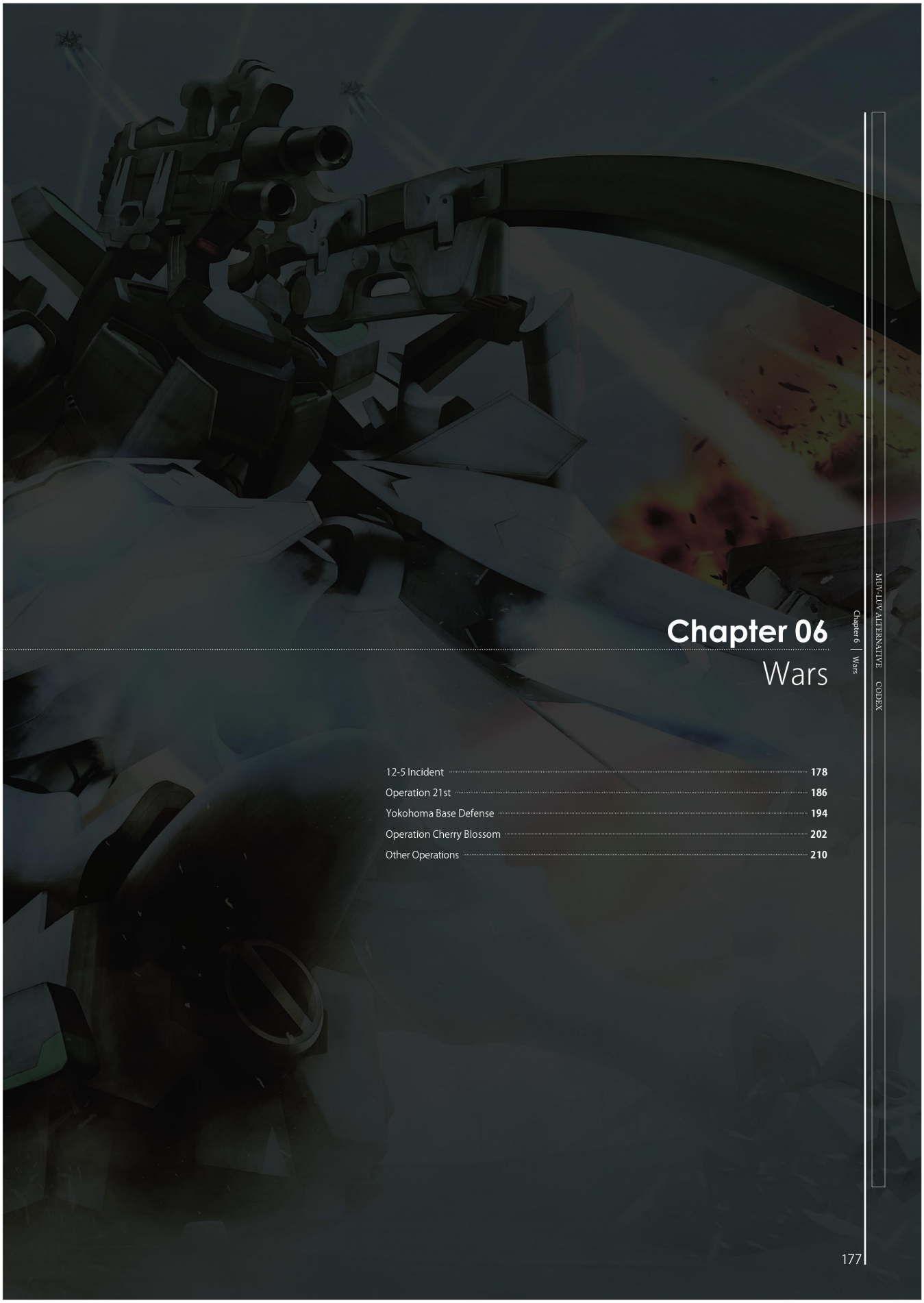
A midrange bomber, developed by the Soviet Union. Although it is capable of supersonic flight, it has poor fuel efficiency and has a short cruising distance. It can load 12,000kg of general purpose bombs, but was originally developed with the expectation of loading the anti-surface missile Kh-22.

The variable geometry wing aircraft, the Tu-22M, is based on the Ty-22, and has had significant improvements made.

Soviet Union Air Force

Tu-95

A long-range, strategic bomber, with a cruising range of 8100 nautical miles (15,000km). It has four turboprop engines, which are mounted with contra-rotating propellers, allowing the craft to reach speeds of Mach 0.8 despite being a propeller aircraft. They can load up to 12,000kg of general purpose bombs.



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Wars

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12-5 Incident PATRIOT GAMES

Illustrated by Ogasawara Tomofumi



Before dawn on the 5th of December, 2001, IJF forces led by Sagiri Naoya conducted an armed uprising and took control of the Imperial Capital, the location of the Shogun. The forces of this uprising advanced to the front of the Imperial Capital Castle, but did not engage in combat. They instead faced off with the Royal Guard. Neither side yielded an inch, in what turned into seemingly, a deadlocked situation. However, the balance of the situation was broken by the intervention of the UN Rapid Deployment Force, which primarily consisted of the US military, the escape of the Shogun from the Imperial Capital, and an unexplained shot fired at the Royal Guard from the Coup forces. This initiated a pursuit between the UN Forces, which secured the Shogun, and the Coup forces. The situation became increasingly chaotic with events such as with the intervention by the US military, and the mastermind of the coup performing an airborne operation. Despite this, the situation started to calm down, once the Shogun was safely secured, with the help of the Royal Guard, which was accompanying the UN Forces. This incident intertwined the intentions of the Coup forces, the US, and the UN, and it revealed not only the underlying problems of mankind, but also forced reforms of systems in the Empire of Japan.

December 05, 2001

12-5 Incident

A Military Coup D'état by Young Officers That Had an Uneasy Outlook for the Future of the Empire

The conclusion and loss of the Pacific War in 1944, and the Japanese archipelago being turned into the frontline of the BETA invasion both greatly altered the political system of the Japanese Empire (hereafter 'Empire').

The position of the Shogun was starting to be reduced to nothing more than an empty title, even though the Shogun, as the head of the constitutional monarchy, ought to be entrusted with full authority over national affairs by the emperor. Furthermore, the Imperial Diet and the military, which should have been supporting the Shogun, were asserting their ability to act independently, by taking advantage of having been granted the Shogun's impunity.

However, there were some who were concerned that these groups were stretching their ambitions and neglecting the Shogun house, which was the foundation of the Empire, and were also distancing them from the citizens.

These concerned people formed a nonpartisan group called the 'Strategic Studies Group', which was led by Captain Sagiri Naoya, and aimed to restore the original nature of the Imperial system.

And then, on December 5th, 2001, these young officers initiated a military coup d'état.

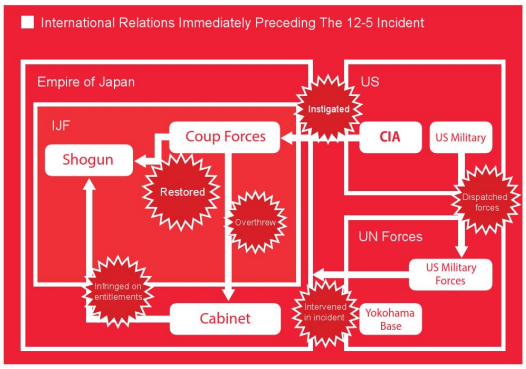
This was the uproar in the Empire that would later come to be known as the '12-5 Incident'.

Another factor behind the incident was the consideration of the US in recovering their influence and voice in the Far East, by weakening the Japanese military and the re-garrisoning of the US military that would follow from that.

The US was trying to gain a political initiative over the Empire, which was proceeding with Alternative 4. To do so, the US was using the Central Intelligence Agency (CIA) to instigate the Coup from behind the scenes, and they would also conspire with Alternative 5 advocacy groups in the UN so the US could receive full credit for resolving the coup situation.

A later investigation by a committee revealed that the Coup had sensed that the US was using them, and it was thought that they were going to reveal to the world the contradictions and problems of the existing regime by taking advantage of the CIA's involvement.

As a result, this incident would not only involve the internal affairs of the empire, but also the speculations of the US and the conflicts regarding the Alternative Program.



The Divided IJF and Outside Interference

Both the Coup forces and the Imperial government wanted an early resolution to the situation, but they had differing opinions on how to achieve this.

The Coup forces were mainly formed from the Mainland Defense Force Imperial Capital Defense Unit, which were famous for being elites. However, compared to the IJF as a whole, they were nothing more than a small force. And so, the coup planned to seize the Imperial Capital and receive a direct statement from the Shogun, in order to avoid an armed conflict, and to achieve a swift reform of the system.

The Imperial government could not allow a political vacuum to occur as a result of the coup, so they were forced to try to swiftly suppress it by extracting forces from the anti-BETA defense lines.

On the other hand, the US and the pro-Alternative 5 senior officials in the UN were trying to accomplish several national interests by intervening in the incident. By weakening the Japanese military, they could recover their influence in the Far East, and also interfere with Alternative 4. There are many traces of them actively leading the situation into chaos.



Captain Sagiri, leader of the Coup, claimed that they were 'patriotic martrys' and acted with force, rather than diplomacy.

■UN Forces

During this incident, the UN forces stationed in Japan offered personnel, including five tactical armored battalions from Yokohama and Yokosuka Bases, in accordance with a decision by the Security Council. These forces formed a Rapid Deployment Force. Units such as the 207th Flight Cadets and A-01 were also deployed.

UN Forces Deployment

207th Tactical Armored Platoon | UN 207sqd
Sergeant Jinguuji Marimo / F-4J Gekishin ／A20700
A Element
Cadet Sakaki Chizuru Type 97 Fubuki / A20701
Cadet Yoroi Mikoto Type 97 Fubuki / A20703
Cadet Ayamine Kei Type 97 Fubuki / A20704
B Element
Cadet Mitsurugi Meiya Type 97 Fubuki / A20702
Cadet Tamase Miki Type 97 Fubuki / A20705
Cadet Shirogane Takeru Type 97 Fubuki / A20706
● Support Vehicle Forces

1st Tactical Armored Battalion | UN 01bat
3rd Tactical Armored Battalion | UN 03bat
4th Tactical Armored Battalion | UN 04bat
5th Tactical Armored Battalion | UN 05bat
2nd Air Support Group
5th Air Support Group

209th Tactical Armored Battalion | UN 209bat
※Belonging to UN Forces Yokosuka Base
11th Fleet | USW 11
※Belonging to UN Forces Yokosuka Base
Special Operations Unit A-01 Wing | VFA-01

■IJF

The IJF formed a force to suppress the rebellion by extracting forces from the absolute and secondary defense lines of North Kanto and Koshinetsu. Furthermore, the Royal Guard faced off with the Coup forces head on, at the Imperial Castle, and the 19th Independent Guard Flight, which was stationed at Yokohama Base, also took part in combat.

Imperial Japanese Military Deployment

Royal Guard 19th Independent Guard Flight | JEG19fli
Lt Tsukuyomi Mana Type 00F Takemikazuchi / 1901
2nd Lt Kamiyo Tatsumi Type 00A Takemikazuchi/ 1902
2nd Lt Tomoe Yukino Type 00A Takemikazuchi / 1903
2nd Lt Ebisu Minagi Type 00A Takemikazuchi / 1904

Royal Guard Second Regiment | JEG 02wig
Atsugi Base Supply Unit
602nd Tactical Armored Squadron | JE 602sqd
604th Tactical Armored Squadron | JE 604sqd
Type 94 Shiranui / 604C, Type 77 Gekishin

605th Tactical Armored Squadron | JE 605sqd
Yokohama Base Perimeter Forces
※ Forces dispatched from the Koshinetsu absolute defense line
Imperial Capital Recapturing Operation Main Force
※Forces extracted from the North Kanto absolute and secondary defense lines

■US Military

When the incident began, the US military had already had its 7th Fleet deployed to Sagami Bay for exercises, and these forces would be organized into the UN Force's Rapid Deployment Force. The unit that was the backbone of this force was the Army's 66th Tactical Armored Battalion, which was equipped with cutting-edge F-22A Raptors.

US Military Deployment

66th Tactical Armored Battalion | US 66bat
Major Alfred Walken F-22A Raptor / Hunter 1 (HUNTER1, HT01)
2nd Lt Irma Thesleff F-22A Raptor / Hunter 2
F-22A Raptor / Hunter 3, 4

A Squadron US 66Asqd
F-22A Raptor x4 / Spike 1-4
F-15E Strike Eagle x 8
C Squadron US 66Csqd
F-22A Raptor / Hunter 9
D Squadron US 66Dsqd
F-22A Raptor / Hunter 11
E Flight US 66Efli
※3 Flight formation
F-22A Raptor / Hunter 5

108th Tactical Armored Battalion | US 108bat
117th Tactical Armored Battalion | US 117bat
132nd Tactical Armored Battalion | US 132bat
174th Tactical Armored Battalion | US 174bat
F-15E Strike Eagle x36 / Heat Leader, Heat 9, 11
7th Fleet | USNW 07

■Coup Forces

The coup forces were mainly formed from highly experienced tactical armored forces, such as the Imperial Mainland Defense Force Capital Defense Regiment, and the Fuji Training Corps. Because of this, they were able to overpower the IJF forces sent to suppress them during combat conducted in local areas. This was one of the reasons the situation's settlement was delayed.

Coup Force Deployment

1st Imperial Mainland Defense Force
Imperial Capital Guard Division
1st Tactical Armored Regiment
Imperial Capital Guard Regiment
CPT Sagiri Naoya Type 94 Shiranui / Bandit 1 (BANDIT01)
Type 94 Shiranui x29 / Bandit 2 (BANDIT02)

Hakone Region Force
E1
Type 94 Shiranui, Type 77 Gekishin
E2
E3
Type 94 Shiranui, Type 77 Gekishin

Advance Party
Fuji Training Corps
Type 94 Shiranui (Russian Color)
671st Airlift Group
Antonof 225 Mriya x15 /An225

The Changing Circumstances of The Incident

Since the start of the 12-5 Incident, it looked like it was heading towards a stalemate centered around the Imperial Capital. This was because the Coup forces had seized the Imperial Capital and surrounded the Imperial Castle, while the IJF, which prioritized the safety of the Shogun, had responded by surrounding the Imperial Capital.

This balance was broken by the intervention of the UN RDF, which included the US Military.

Furthermore, hostilities had broken out in the Imperial Capital, and with the Shogun's escape from the Capital, the new focal point became the region from the Sagami bay coast to the Izu Peninsula.

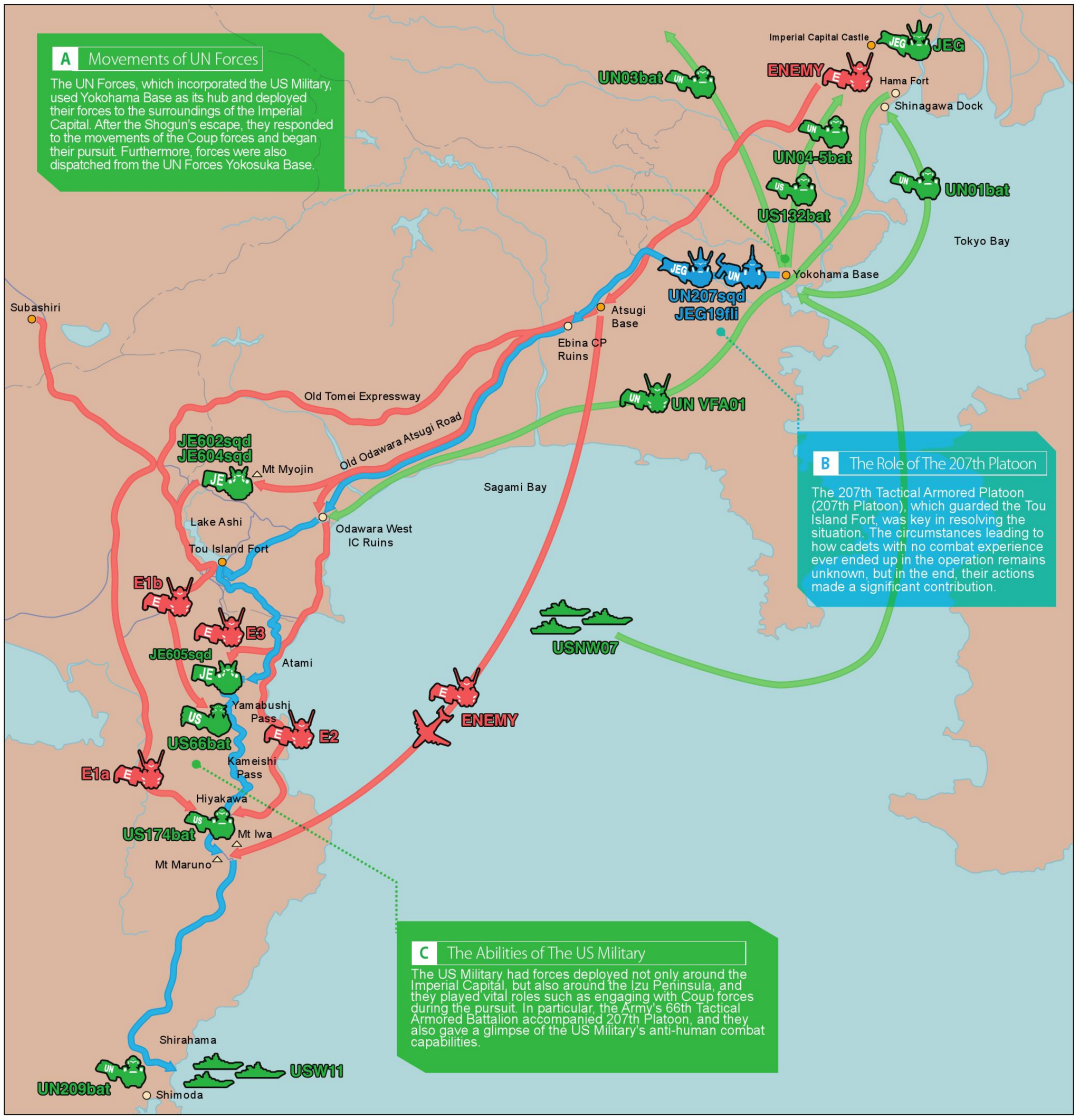
It can be said that the US had anticipated this increase in combat, and that they were the ones that had orchestrated the situation.

Neither party wanted an unpredictable combat situation. The coup forces valued the wishes of the Shogun—the person the IJA could not afford to lose.

In the end, a pursuit broke out between Coup forces and the UN Forces units that had secured the Shogun, and the situation became extremely unstable when the US Military intervened there.

Developments in The Incident

December 5th, Daybreak	Coup forces commence their uprising and suppress the major functions of the Imperial Capital
December 5th, Approx. 05:00	Coup forces impose martial law on the Imperial Capital. The UN Security Council decides on military support for the Empire and to organize the US 7th Fleet into the UN Forces
December 5th, Approx. 18:18	The provisional government accepts the UN Forces. The operation to recapture the Imperial Capital commences.
December 5th, Approx. 21:42	Combat commences in the Imperial Capital
December 6th, Approx. 00:00	The Shogun, Koubuin Yuuhi, escapes the Imperial Capital
December 6th, Approx. 01:47	The 207th Tactical Armored Platoon at the Tou Island Fort secures the Shogun. They commence their escape to the southern end of the Izu Peninsula. The 207th Tactical Platoon is then surrounded by the airborne forces of the Coup. After a ceasefire, combat breaks out and Captain Sagiri is killed in action.
December 6th, Approx. 13:23	The provisional government declares the situation to have concluded



12-5 Incident

The Outbreak of The Incident and the Response

At daybreak, on the 5th of December, 2001, the Coup forces rose up across several locations of the Imperial Capital and completely suppressed the Prime Minister's official residence, the Imperial Diet Hall, and the major functions of several ministries and offices. Furthermore, they seized the main water treatment facilities, broadcast stations, and power plants. Through this, they had essentially seized the capital's functions.

They then surrounded the Imperial Castle to gain direct word from the Shogun, and confronted the Royal Guard.

At approximately 04:00, Yokohama Base received notice of the Coup, and issued a Stage 2 Defense Readiness Condition.

They then gave the command for all combat forces to be fully armed and on standby.

However, Commander Paul Radhabinod rejected the request of the UN Vice Minister, Tamase Genjousai, to dispatch troops, with the reason that there had been no request to do so from the Imperial government. He also refused to accept the US Military's 7th Fleet, which was deployed to Sagami Bay.

Due to this, the UN Forces would end up waiting on standby while watching the situation unfold.

At approximately 5:00, the Coup forces neutralized the Ministry of Defense, which continued to resist to the very end, and murdered the Prime Minister, Sakaki Korechika, as well as several other cabinet members.

In order to restrain the UN Forces in Japan and the US Military, Captain Sagiri declared that this incident was an internal affair of the Empire, while proclaiming martial law in the Imperial Capital.

In response to this, the Imperial provisional government, which was set up in Sendai, extracted forces from several defense lines and had them gather in the vicinity of the of the Imperial Capital, to recover both the city and the Shogun.

On the other hand, the UN Security Council decided to incorporate the US Navy's 7th Fleet into the UN Rapid Deployment Force (the official announcement occurred at 07:00), and the 7th Fleet began to be accepted into Yokohama Base.

However, at this point in time, the provisional government disagreed with the military intervention of the UN Forces and US Military, and so they deployed TSF forces from the Koshinetsu absolute defense line to the surroundings of Yokohama Base, where the US forces has landed, and these forces were kept on alert.

Meanwhile, a deadlocked situation continued in the Imperial Capital, mainly around the Imperial Castle.

However, as a result of a meeting between the provisional government's plenipotentiary envoy and Vice Minister Tamase, the provisional government formally announced the acceptance of military support from the UN Forces.

Following this, the situation would see significant changes.

The UN Forces drafted the Imperial Capital recapturing operation based on the absolute condition set by the provisional government: the safety and protection of the Shogun.

Together, they sent forces one by one, consisting mainly of UN Forces Tactical Armored units, towards the Imperial Capital, while having the main IJF forces advance to shrink the encirclement net around the Imperial Capital.

Meanwhile, the Coup forces harshly criticized the provisional government, which had accepted UN and US support, declaring that they were traitors that disregarded the will of the Shogun, and that the act was one of treachery carried out by UN supporters. However, they did not take any military action based on this, and the stalemate surrounding the Imperial Castle remained unchanged.

The Deployments of UN and US Forces at The Imperial Capital

When the operation began, the UN Forces sortied their 1st Tactical Armored Battalion and 5th Air Support Group towards the Imperial Capital area, and as this happened, they made preparations to dispatch the 4th and 5th Tactical Armored Battalions, as well as the 2nd Air Support Group.

On top of this, they dispatched the 3rd Tactical Armored Battalion to the secondary defense line, which had become undermanned due to the extraction of forces.

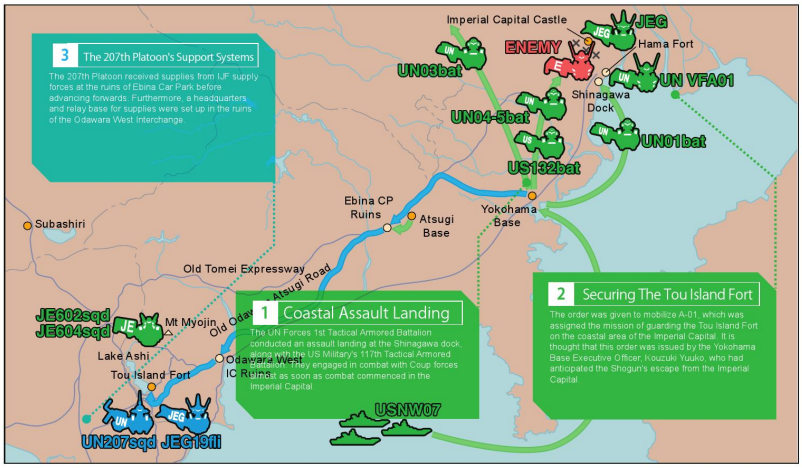
Meanwhile, the US had their 117th and 132nd Tactical Armored Battalions advance towards the Imperial Capital, from Yokohama Base, where the 7th Fleet had originally landed them.

Furthermore, the 207th Tactical Armored Platoon and the Imperial Royal Guard 19th Independent Guard Flight, which was accompanying them, were dispatched at 19:40, the same time as the 3rd Tactical Armored Battalion.

They headed towards the eastern coast of Lake Ashi, by passing through the ruins of National Route 16, the Tomei Expressway, the Odawara-Atsugi Road, and Hakone Shindo.



The 207th Platoon took on the role of guarding the Tou Island Fort using Type 97 Fubukis with C Type equipment, but at this stage, they were yet to encounter hostiles.



How The Shogun's Escape Transformed the Situation

The Shogun, Koubuin Yuuhi, had grown concerned over the intensifying combat in the Imperial Capital, and escaped via a secret subway, in order to act as a decoy and divert the combat's area of focus.

The 207th Platoon had been notified of this at daybreak on the 6th, and the Shogun, who had arrived at the Tou Island Fort, was secured by UN Forces provisional 2nd Lieutenant Shirogane Takeru, who had been guarding the surroundings.

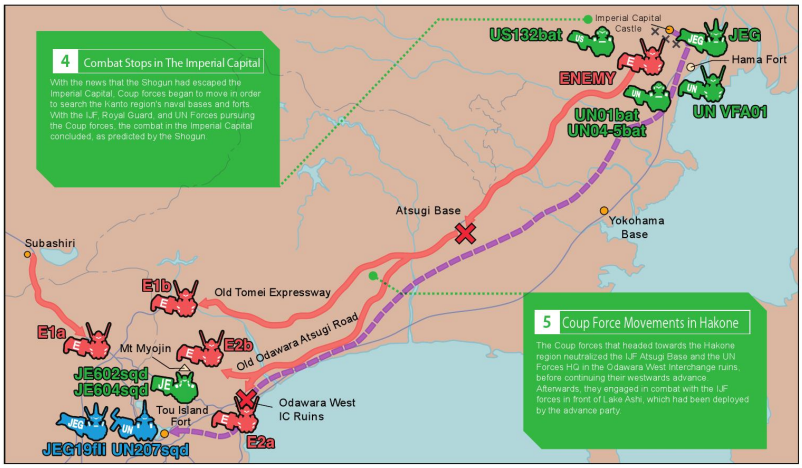
Meanwhile, the Coup forces learned of the situation following an information leak, and commenced pursuit of the 207th Platoon.



The Shogun was accompanied by only the Grand Chamberlain and Yoroi Sakon, the Chief of the Imperial Ministry of Intelligence 2nd Foreign Affairs Department, and they escaped the Imperial Capital through a secret subway, before being secured by the 207th Platoon.



The information was leaked by Yoroi Sakon, in order to transfer the battlefield to an uninhabited area.



Tactics of the Escaping Forces

At 21:42, when the state of tension was mounting, some of the infantry forces surrounding the Imperial Castle simultaneously opened fire on the Royal Guard forces, across several locations.

The Royal Guard 2nd Regiment responded to this and combat broke out. Even with Captain Sagiri giving out an order to halt combat, the situation did not come under control, and the combat in the Imperial Capital continued to intensify, with the IJF forces from the border of Saitama Prefecture joining in to subdue them.

It was around 00:00 the following day, the 6th, that the Shogun Koubuin Yuuhi became aware of the situation and escaped the Imperial Capital as a lure. By 01:37, the information of the Shogun's escape was given to UN Forces headquarters by the Shogunate, which was desperately trying to save face.

Approximately ten minutes later, at around 01:47, the 207th Tactical Armored Platoon, which was guarding the perimeter of the Tou Island Fort, secured the Shogun.

The main battlefield would then shift away from the Imperial Capital.

At 02:04, the advance party of Coup forces that had headed towards the Hakone region, while in pursuit of the Shogun, engaged in combat with the IJF 602nd, 604th, and 605th Tactical Armored Battalions in the Mt Myojin area.

Meanwhile, the main forces, which were further behind, split and advanced down two routes: the Tomei Expressway ruins (E1) and the Odawara Atsugi Road ruins (E2). In response to this, the 207th Platoon prepared a plan to escape using a sea route, by heading south down the Izu Peninsula.

They established a plan to shake off enemies by breaking through the mountain areas while receiving support from friendly forces.

At 02:55, the 207th Platoon and the 19th Independent Guard Flight, which also advanced south as part of the plan, had let E3 (a detachment from E2 that had broken through the IJF 605th Tactical Armored Battalion in the areas surrounding Yamabushi Pass) close in on them, while also being pursued by enemy reinforcements from a 4 o'clock direction.

However, they succeeded in their retreat, due to support from A Squadron, which had broken off from the US Army 66th Tactical Armored Battalion (hereafter '66th Battalion'), which had been heading northwards.

At 03:37, they regrouped with the 66th Battalion's main forces at Kameishi Pass and were resupplied.

Major Alfred Walken, commander of the 66th Battalion, organized the 207th Platoon and 19th Independent Guard Flight into his ranks as an emergency measure, and recommenced the escape through the planned route.

However, by 04:04, E3, which was tailing them further back, had reached Kameishi Pass, and A squadron was forced to retreat from combat.

Furthermore, the US Armed Forces 174th Tactical Armored Battalion, which was deployed west of the Hiyakawa Toll Gate ruins, was suppressed by the Fuji Training Corps, which was advancing down the ruins of National Route 136, ahead of the main E1 forces. They would reach the Hiyakawa Toll Gate from there.

In response, the 66th Battalion used their C and D Squadrons to avoid being encircled, and also wanted to reconstruct a defense line with E Flight.

As a result, the only flight accompanying the 207th Platoon was Major Walken's, but even so, the escaping units managed to break through the Hiyakawa Toll Gate Ruins and escape from danger.

UN Forces and US Military Deployments - Focused On The Imperial Capital

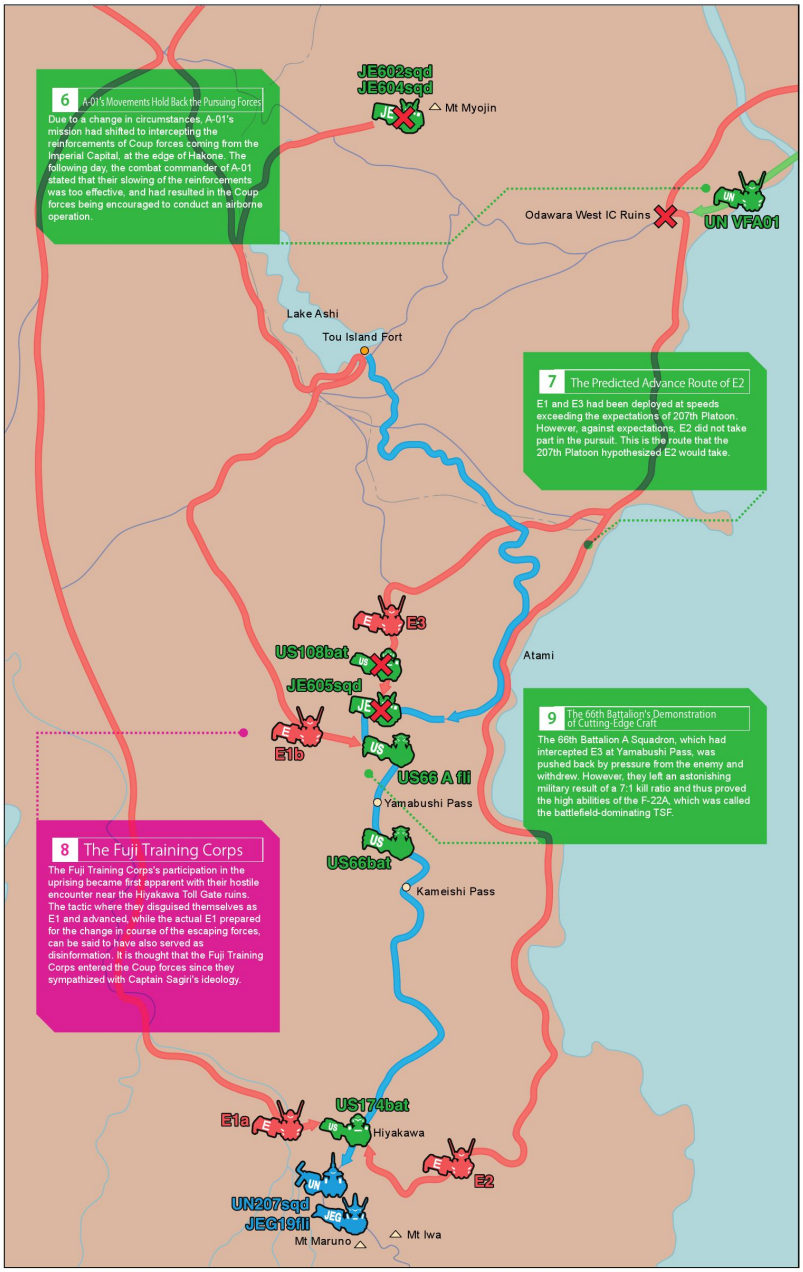
The plan of the 207th Platoon was to pass through the Izu Skyline ruins from the ruins of Atami Shindo, and use the terrain of the mountainous areas to attempt an escape.

The US Military 108th Tactical Armored Battalion was planning to join the support vehicle forces that detached from the platoon, to act as a diversion, while on defense, in response to the assumed plans of the Coup forces. E1 was expected to follow the 207th Platoon by passing through Old Mishima City from the ruins of the Lake Ashi Skyline. E2 was trying to secure the coast line by heading south down along Route 135. E3 was expected to pursue them from the Izu Skyline ruins.

The 207th Platoon expected that if they could break through the Hiyakawa Toll Gate ruins while the 108th Tactical Armored Battalion were providing a diversion, in order to avoid a pincer attack from E1 and E2, they could rally with the UN Forces 11th Fleet on Shirahama Beach, with support from the UN 209th Tactical Armored Battalion, which had landed at Old Shimoda City.



Koubuin Yuuhi boarded Shirogane's craft (06) and each unit advanced while assuming a formation to protect 06's perimeter.



12-5 Incident

Airborne Assault and Ceasefire

It seemed that the escaping forces, under the 207th Platoon, broke through the encirclement around the Hiyakawa Toll Gate ruins and had shaken off the Coup forces.

However, the Shogun began to show signs of motion sickness, having boarded a TSF without wearing a fortified suit, and the combat maneuvers performed while breaking through the encirclement only worsened these symptoms.

Due to this, the escaping forces had to abandon their advance to rest in a valley, surrounded by Mt Maruno and Mt Iwa.

During this, there was a conflict of opinion between Major Alfred Walken and Lieutenant Tsukuyomi Mana, the commander of the 19th Independent Guard Flight, when deciding how to handle the Shogun, and this would end up acting as an advantage for the Coup forces.

With this small window of time, the IJF 671st Airlift Group, carrying the Coup forces, departed from Atsugi Base and approached the escaping forces.

The Coup's airlift operation was successful and the escaping forces were completely surrounded.

Furthermore, Captain Sagiri himself led the daring airborne assault in the dangerous airspace, and even during this situation, he proposed a 60-minute ceasefire to the escaping forces.

With no means of knowing the state of combat occurring far behind them, the escaping force accepted the ceasefire, but the situation would completely change when the Shogun grew impatient with the stagnation of the situation and decided to negotiate with Captain Sagiri.

As a result of several complications, the final plan was for provisional 2nd Lieutenant Mitsurugi Meiya to assume the identity of the Shogun and attempt negotiations. In the case that it failed, they would force their way through the encirclement.

In Plan A, which revolved around the negotiations, Shirogane Takeru's craft, which was boarded by provisional 2nd Lieutenant Mitsurugi, would accompany Tsukuyomi's craft for the negotiations. Meanwhile, craft would be kept on guard in sniper positions on Mt. Maruno and Mt. Iwa.

Kamiyo Tatsumi's craft, which was boarded by the Shogun, would wait further back alongside direct support units, while the other units would be positioned to the south-west of Mt. Iwa.

If twenty minutes passed following the start of negotiations, or if negotiations were to fail, the plan was to move to Plan A Phase 2. A 'Plan B', which followed a similar procedure, was also prepared in the case that the Coup forces didn't respond to the negotiations.

This plan involved using Shirogane Takeru's craft as a lure to bring the Coup forces closer, in order to shift the plan to Plan A Phase 3, where Kamiyo's craft carrying the Shogun would break through the encirclement and flee to Shirahama.

Furthermore, were this to occur, it was expected that the two craft sent to negotiate would regroup with the three craft on guard, to protect the main forces, while the two craft of provisional 2nd Lieutenants Yoroi and Tamase, which were supporting the craft boarded by the Shogun, would support the main force from behind.



Provisional 2nd Lieutenant Mitsurugi understood the sentiment of her twin sister, the Shogun, which allowed her to play that role well.



Captain Sagiri spoke to the Shogun of the political corruption and conspiracies that were behind the coup.

Nationalism or Madness? The Desperate Airborne Assault

The IJF Atsugi Base, which houses the 671st Airlift Group, had cut off all communications by 02:04.

This was initially assumed to be a result of them falling to the Coup force's western advance, but based on the fact that the Coup's airborne assault was conducted exceedingly quickly, it is also thought that they were conspiring with the Coup forces, though the truth remains unclear.

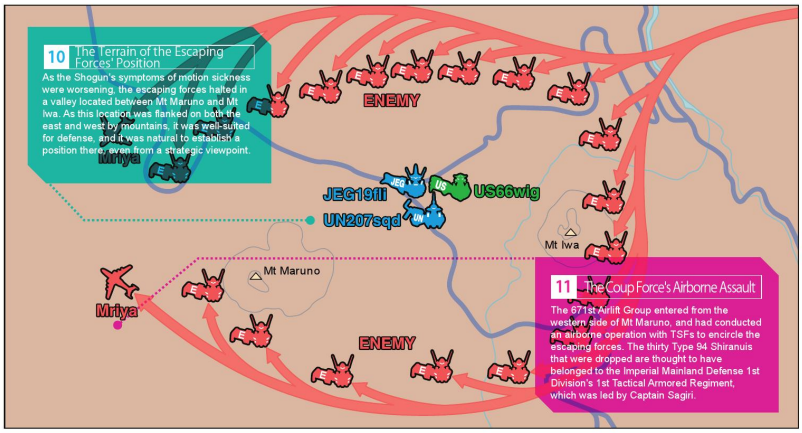
Furthermore, at this point in time, air supremacy of the Pacific was held by the UN and US forces, and it is thought that the 671st Airlift Group entered the Izu Peninsula from inland.

Conducting an airborne assault from the inland side using large transport craft, which have difficulties with NOE flight, faced the risk of being attacked by BETA from Sadogashima and the mainland.

Although it was conducted to secure custody of the Shogun, this operation was something so abnormal that Major Walken would call it "madness".



The airborne assault of the Coup forces was a measure that had surpassed all expectations, and the escaping forces were caught completely off guard.



Peace Aborted by a Mysterious Shot, and the Tactics of the Shogun's Escape

The diagram below shows the positioning immediately after the negotiations started, with the negotiations taking place approximately 400m northwest of the Amagi Heights Interchange ruins.

Although the negotiations had started of smoothly, Thesleff's craft fired at the location of the negotiations before Plan B was instated, breaking down the negotiations. There was the possibility that 2nd Lieutenant Irma Thesleff was under post-hypnotic suggestion by an intelligence agency, but the method by which the initiating keyword was transmitted remains unknown, so this idea remains speculative.

Both sides devolved into combat, and while Tsukuyomi's craft held back the enemy craft, Shirogane Takeru's craft retreated and aimed to regroup with the main forces.

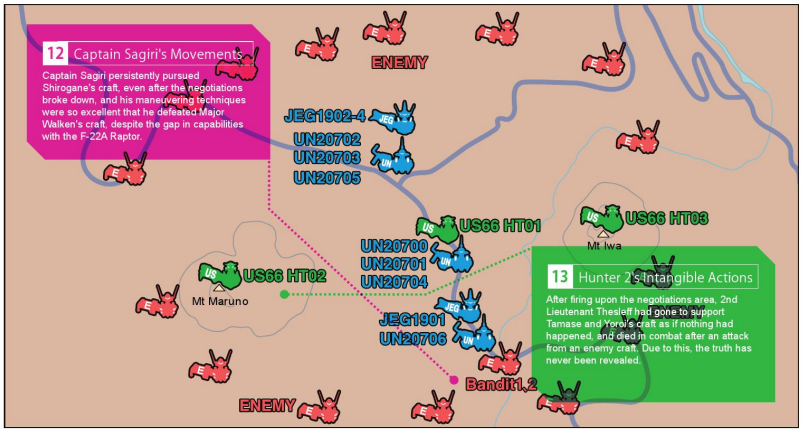
The plan moved to Phase 3 once the Coup forces had become concentrated around Mt Iwa, but the escaping forces had suffered significant losses, such as Walken's craft being defeated by Sagiri's.

Afterwards, combat headed towards a conclusion with the defeat of Sagiri's craft by Tsukuyomi's, and with the Shogun's successful escape.

The damage to the 207th Platoon during this battle was light, and this proved the capabilities of the new OS mounted on the Type 97 Fubuki.



Captain Sagiri, who was the leader of the coup d'état, was killed in combat by Lieutenant Tsukuyomi's Type 00 Takemikazuchi.



The Conclusion and Influence of The Incident

With the successful escape of the Shogun, and the surrender of all forces taking part in the coup, the 12-5 Incident came to a conclusion.

Eight days later, on December the 14th, the Sendai provisional government disbanded. On the same day, the new cabinet was formed.

Many other changes were then instated. Firstly, pro-US right wingers that were exposed by the incident were swept out of the core of the political system. Secondly, the military and government's liberal interpretations of the Shogun's authority and their abuses of power in the name of the Shogun were rectified, hence restoring the nation to its original constitutional monarchy, and restoring the Shogun's powers.

The fact that the 207th Platoon, consisting of Japanese Surface Pilots, had saved the Shogun gave a positive impression of the UN to the Empire's national sentiment, changing the relationship between the UN forces in Japan and the IJF to one that was more favorable.

On top of this, the fact that the incident was a collaborative effort between the UN Forces and the IJF allowed it to function as an unexpected exercise in cooperation for the later Operation 21st.

Furthermore, not only did the Alternative 4 Headquarters prove the effectiveness of their proof-of-concept OS in this incident, they also discovered its value as a bargaining chip with external parties.

However, the numbers of Surface Pilots and TSFs lost in the incident were by no means small, and in particular, the fact that elite forces from groups such as the Imperial Capital Defense Force and the US Army 66th Tactical Armored Battalion had been lost in an insurrection was not only a big loss for the nations involved, but for humanity as a whole.

In consideration of the emergency situation, the Great BETA War, many of the personnel connected to the coup were pardoned and allowed to return to duty, but ill feelings persisted over a long time in the IJF between those that were part of the coup and those that suppressed them.

On the other hand, the US had intervened in the incident with a firm stance, but failed to take advantage of the political power vacuum. Instead, they did nothing more than help the Alternative 4 advocacy groups.

This had become the starting point for the breakthroughs of Alternative 4, which would eventually lead to Operation 21st.

Yokosuka: The Goal of the Escaping Force's Southwards Descent

Even after Captain Sagiri, the leader, had been killed in combat following the airborne assault, skirmishes between coup forces and the forces sent to subdue them continued sporadically across several locations.

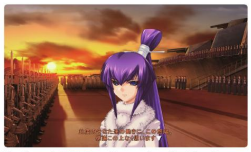
The forces remaining in the Capital City, such as in Ichigaya Garrison, as well as those deployed to Hakone, were still in good shape and continued to stubbornly resist, even after losing their chain of command.

However, once it became apparent that the Shogun had escaped to Yokohama Base, with the help of the UN Forces 11th Fleet, the Coup forces began to surrender one by one.

Even the forces of Ichigaya Garrison, which had continued to resist until the very end, surrendered after noon on the 6th.

Upon news of this, the provisional government announced the conclusion of the situation at 13:23, and lifted the martial law on the Imperial Capital.

The Shogun avoided land routes where there was still disorder, and returned to the Imperial Castle from Yokohama Base in Battleship Kii. With this, the coup incident had finally drawn its curtains closed.



The Shogun left Yokohama Base on board the Kii on the evening of the 6th, and the 207th Platoon's cadets were also present.



The Meaning of the Shogun's Existence in The Empire

The Shogun's political and symbolic meaning in the Empire was hugely significant in the 12-5 Incident.

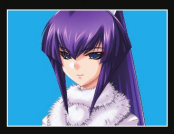
Because this meaning had been defaced, Captain Sagiri started a coup. Even in the escaping forces, arguments broke out with the US Military personnel, who did not understand those values.

The Shogun is the symbol of Japan itself, not only for the citizens of the Imperial Capital, but for all Japanese people. It is undeniable that many sympathized with the ideas, though not with the methods, of Sagiri's group, which had caused the uprising out of respect for the Shogun, above all else.

It can be said that this national sentiment is what led to the restoration of the Empire's political system, even though the coup failed.

Furthermore, the Empire was exposed to combat with the BETA every day, and the hearts of the people were worn down to the limits.

Because they were in such a position, it is likely that they required a clear person to rely upon - the Shogun.



Koubuin Yuuhi

The Shogun's words, "You must not avoid dirtying your own hands," left a big impact on Shirogane Takeru.





Operation 21st THE LONGEST DAY

Illustrated by Tenjin Hidetaka



Operation 21st—everything rested on this single operation. It was the earnest wish of the IJF to reclaim its territory and secure peace in Japan. It was the first step for UN Forces personnel in a counter-offensive on the continent. And finally, it was also the first time that Alternative 4, which had sacrificed much for its progress, could finally show off its achievements to the world. The operation to capture the hive on Sadogashima (IJF strategic designation "Target 21"), had been put into motion. As a follow up to Operation Lucifer, which was mankind's first success in capturing a hive, the collective capabilities of mankind's forces from the IJF, UN, and Alternative 4 had poured onto the utterly decimated Sadogashima from the sea and from space. This was mankind's major counter-offensive—but the BETA would show humanity their overwhelming strength, as the rulers of Eurasia.

December 25, 2001

Operation 21st

The Large Counter-Offensive Staged at Sadogashima

In mid-December, 2001, Alternative 4 had finally completed 00 Unit, which was pivotal for the program.

On the other hand, the opponents of Alternative 4, such as the pro-Alternative 5 groups, were growing weaker in influence due to the failure of intervening in the coup d'état that occurred on the 5th of December in the Empire of Japan, as well as due to Alternative 4's report of 00 Unit's completion, despite the plan being thought to have achieved no results for many years. And so, the pro-Alternative 4 groups had caught up to them.

Alternative 4 did not miss this opportunity. In order to make the plan's achievements known to the other nations with clear combat results, and to further propel the plan by deploying 00 Unit in combat, they proposed plans for a mission to capture the Sadogashima Hive to the Imperial Japanese government.

The Sadogashima Hive, which was positioned a mere several dozen kilometers from Honshu of Imperial Japan, was the largest threat to the Empire and all the defense lines in the Far East regions. Therefore, capturing that hive and retaking Sadogashima were the long desired ambitions of the Empire.

For Alternative 4, the Sadogashima Hive was an excellent stage to conduct operational evaluation trials of 00 Unit, which was made to conduct anti-BETA readings on the front lines. This was due to the hive existing within a close proximity of Yokohama, allowing it to be used as the rear base of the operation, as well as there being no shortage in reasons for the IJF to take part in the operation.

And so, the interests of the pro-Alternative 4 groups and the Empire aligned, and as a result of top secret negotiations between leaders from both sides, the mission to capture the Sadogashima Hive was drafted as an operational evaluation trial of 00 Unit, and then was brought into effect.

This operation would be named 'Operation 21st', after the IJF's strategic designation of the Sadogashima Hive, 'Target 21'.



With additional tunings made from the 18th of December, 00 Unit's use in combat had become somewhat viable, and the evaluation trials, which people such as Executive Officer Kouzuki had been preparing, were put into practice. These trials were the combat tests that occurred on Sadogashima.

The Thoughts of The UN, The Empire, And Alternative 4

Operation 21st was planned as a collaborative effort between the Far East UN Forces and the Imperial Mainland Defense Force.

The IJF deployed nearly half of its forces to this operation, and was preparing to give their all in retaking Sadogashima and supporting the operational combat trials of 00 Unit.

By removing the Sadogashima Hive, which was a thorn in Honshu's side, it would be possible to significantly reduce the size of the defense lines across Honshu, and it would also be possible to free important cities such as the capital of Tokyo, the provisional capital of Sendai, and the surrounding air space from the threat of BETA.

Meanwhile, by securing the safety of the mainland, the Far East UN Forces would be able to reestablish the original function of the Far East defense line, which was to tie together Sakhalin, Japan, Taiwan, and the Philippines. Ensuring this safety would also allow them to gain the footing for a continental counter-offensive.

The IJF had not only paved a defense line at Sadogashima, but also at the Sakhalin and Kyushu regions, and they had not entirely recovered from the significant losses incurred during the events such as the Fall of Western Japan in 1998, and Operation Lucifer the following year. The Far East UN Forces had also spread much of its strength across the defense of the Eurasian continent's coast, which includes the Far East defense line. Therefore, it was impossible for either group alone to capture Sadogashima.

Furthermore, Yokohama Base, Alternative 4's headquarters, possesses the largest force in the Far East, and originally, forces belonging to Yokohama Base were planned to be deployed alongside A-01 to protect 00 Unit. However, Yokohama Base was surrounded by the Empire's territory, and as the anti-BETA defense lines and culling operations were mainly manned by the IJF, the UN was expected to take more of a passive role. They would also end up revealing their lack of proficiency in events such as the BETA escape at Yokohama Base in December 2001.

Alternative 4's headquarters would therefore be forced to abandon the use of Yokohama Base forces other than A-01.

Overall, the goals of all participating groups had aligned. The IJF and UN Fore wanted to stabilize Japan and the Far East by rallying forces, and Alternative 4 wanted to use the perfect location of the Sadogashima Hive for a demonstration trial, while preparing as many escort forces as possible for their vital 00 Unit. From this came the actualization of the large scale counter-offensive of Operation 21st, which is said to be second in size only to Operation Lucifer in 1999.

However, the details of 00 Unit were kept hidden even from the IJF headquarters, the supervisors of the operation.

They were only given a top secret explanation that Alternative 4's key was the Susano-O Mk. II, while 00 Unit was its control device.

Furthermore, there were suspicions of a secret agreement between the Empire and Alternative 4, where if the hive capturing was successful, G-elements that would have become UN property would be instead offered to the Empire, in return for their cooperation.

■UN Forces

The UN Forces deployed not only 00 Unit and the Susano-O Mk. II, which were the foundations of the operation and A-01 to escort them, but also deployed forces comprising the US Military and COSEAN forces.

At first glance, it would appear that their supplied forces were small compared to the scale of the operation, but their zeal for the operation could be seen in their deployment of the UN Pacific Fleet's main battleship forces, as well as their precious reentry destroyer fleet and the 6th Orbital Drop Corps.

■IJF

The IJF, which took the main role in the operation, mobilized a large force consisting of almost half of the army, and the main forces of the Combined Fleet.
This was the result of negotiations with the Alternative 4 Headquarters, but it was also a signal of the Empire's determination to ensure the operation's success, no matter what, since reclaiming Sadogashima was the earnest wish of the IJF's personnel.

UN Forces Deployment

Special Task Force A-01 Squadron | UN VFA01

A Flight UN VFA01-A
CPT Isumi Michiru Type 94 Shiranui / A09a-00 (Valkyrie 1)
2nd Lt Sakaki Chizuru Type 94 Shiranui / A09a-01 (Valkyrie 7)
2nd Lt Yoroi Mikoto Type 94 Shiranui / A09a-02 (Valkyrie 8)
2nd Lt Tamase Miki Type 94 Shiranui / A09a-03 (Valkyrie 9)

B Flight UN VFA01-B
Lt Hayase Mitsuki Type 94 Shiranui / A09b-00 (Valkyrie 2)
2nd Lt Shirogane Takeru Type 94 Shiranui / A09b-01 (Valkyrie 10)
2nd Lt Mitsurugi Meiya Type 94 Shiranui / A09b-02 (Valkyrie 11)
2nd Lt Ayamine Kei Type 94 Shiranui / A09b-03 (Valkyrie 12)

C Flight UN VFA01-C
Lt Munakata Misae Type 94 Shiranui / A09c-00 (Valkyrie 3)
2nd Lt Kazama Touko Type 94 Shiranui / A09c-01 (Valkyrie 4)
2nd Lt Suzumiya Akane Type 94 Shiranui / A09c-02 (Valkyrie 5)
2nd Lt Kashiwagi Haruko Type 94 Shiranui / A09c-03 (Valkyrie 6)

CP Officer
Lt Suzumiya Haruka Heavy Cruiser Mogami / CP-A09 (Valkyrie Mom)

00 Unit
XG-70b Susano-O Mk. II / A-02

UN Space Force Armored Destroyer Fleet

UN Pacific Fleet | UNW 00
Iowa New Jersey Missouri Illinois
Kentucky ※Other vessels that took part are unknown

Echo Unit | ECHO
※Formed of 3 UN Forces armored regiments and 5 tactical armored regiments

6th Orbital Drop Corps | UNOC 06bat
Sauber Squadron F-15C Eagle / F-15E Strike Eagle / Sauber 1-3

Ghost Squadron, Razor Squadron, Aquila Squadron

Imperial Japanese Military Deployment

Flagship Fleet | JNW 01
Ozawa / Heavy Cruiser Mogami ※Boarded by Yokohama Base Deputy Commander Kouzuki Yuuko and Adjutant Lieutenant Irina Pyatkh
TSF Carrier Kunisaki ※Other vessels that took part are unknown

Imperial Combined Fleet 2nd Squadron | JNW 02
Abe Battleship Shinano (JN BB0108)
Battleship Mino (JN BB0112)
Battleship Kaga (JN BB0117)
Oda Submarine TSF Carrier Takashio
TSF Carrier Takao ※Other vessels that took part are unknown

Imperial Combined Fleet 3rd Squadron | JNW 03
Tadokoro Battleship Yamato
Iguchi Battleship Musashi
TSF Carrier Ookuma ※Other vessels that took part are unknown

IJN 17th Tactical Armored Squadron | JNM 17sqd
Stingray Squadron Type 81 Wadatsumi / Stingray 1

Whiskey Unit | WHISKY
※Formed of 4 IJF armored divisions, and 10 tactical armored regiments
IJF 133rd Regiment Cracker Flight
2nd Lt Isumi Akira Type 77 Gekishin / Cracker 3
Type 77 Gekishin / Cracker 1, 2, 4
J [Juliet] Group
K [Kilo] Group
L [Lima] Group
M [Mike] Group
N [November] Group
IJN 4th Tactical Armored Squadron

■Royal Guard

The elite 16th Group was dispatched from the Royal Guard to this operation, which had the survival of the Empire on the line.

This group was an elite force with a focused deployment of the cutting-edge craft, the Type 00 Takemikazuchi. The 19th Independent Guard Flight, stationed at Yokohama Base, was also temporarily incorporated into the operation. The IJF held onto the 16th Group as strategic reserves.

Royal Guard Deployment

IJF 16th Group | JEG 16bat
Type 00R Takemikazuchi
Lt Tsukuyomi Mana Type-00F
Takemikazuchi / Crest 2
2nd Lt Kamiyo Tatsumi Type 00A Takemikazuchi
2nd Lt Tomoe Yukino Type 00A Takemikazuchi
2nd Lt Ebisu Minagi Type 00A Takemikazuchi
Type 00C Takemikazuchi

The Meticulously Planned Large-Scale Capturing Operation

Operation 21st was planned to have its primary goal as the neutralization of Target 21, with secondary goals of capturing enemy facilities and gathering information.

Two fundamental plans of action were prepared. Plan A involved the standard forces, mostly consisting of tactical armored battalions, suppressing Target 21, and Plan B involved using the Susano-O Mk. II to suppress the hive, should Plan A go wrong. Furthermore, Plan C was readied in case an emergency occurred with 00 Unit or the Susano-O Mk. II, where they would withdraw from the combat zone by using autonomous control. Plan D involved destroying the Susano-O Mk. II with naval gunfire to prevent information leaks. Finally, in preparation of the worst-case scenario, even a Plan G was prepared, where the Susano-O Mk. II would self-destruct using a supercritical reaction in the ML Drive mounted on it, thus eliminating the Sadogashima Hive from its roots.

The operation had four stages, from Phases 1 to 4.

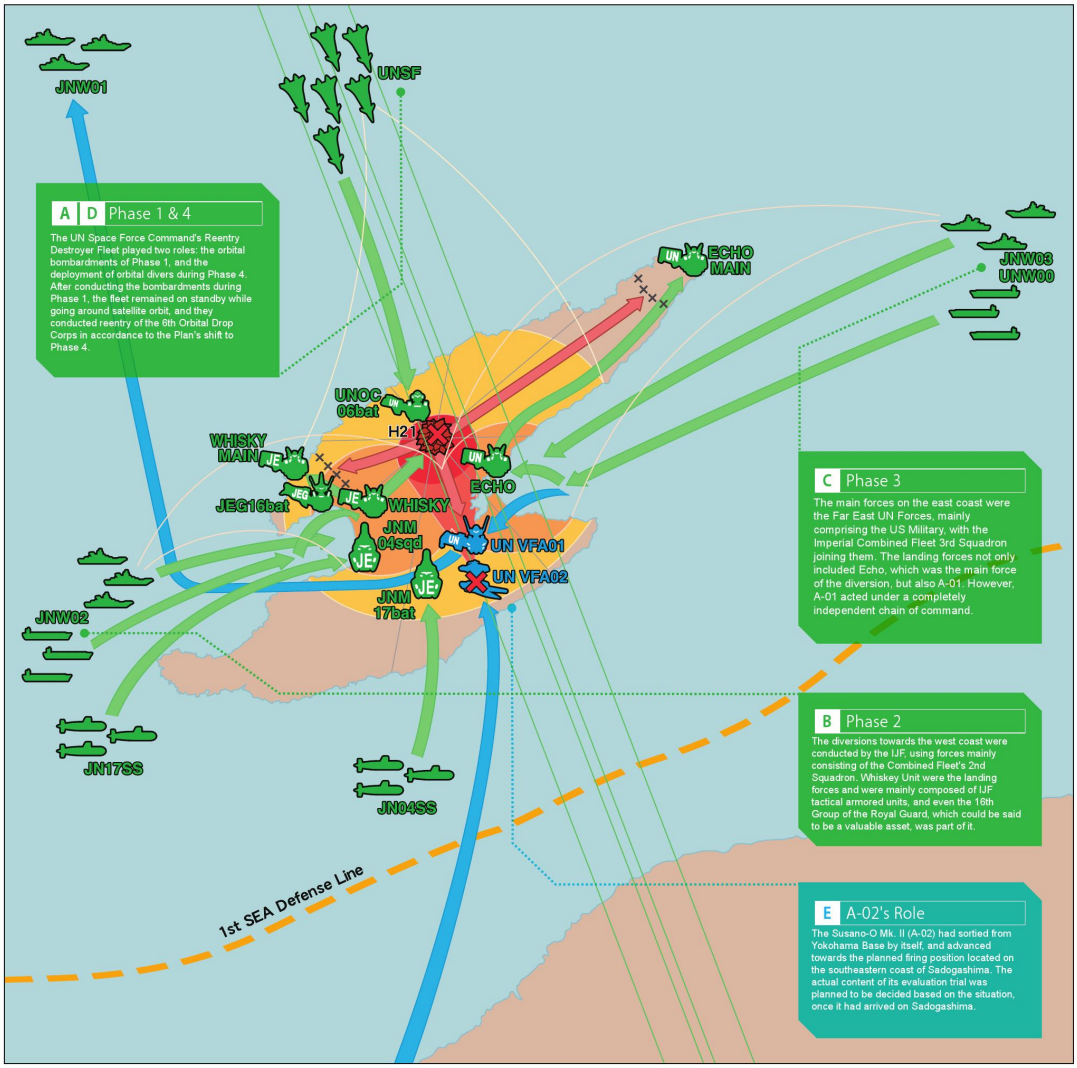
During Phase 1, the low orbit fleet would conduct an orbital bombardment of the hive. In Phases 2 and 3, diversions would be conducted to lure the BETA towards the east and west coasts of Sadogashima. Phase 4 involved infiltrating the hive itself.

This was an orthodox strategy, seeing as it involved a combination of orbital drop tactics with standard tactics for coastal engagements.

However, since the operation was on a scale only behind 1999's Operation Lucifer, and because it was the first actual combat mission to align with Alternative 4's objectives, the operation was identified as a military turning point deserving of attention.

Developments in The Operation

December 23rd, Daybreak	Operation 21st announced. The IJF and Far East UN Forces taking part begin to gather along the coast of the Sea of Japan
December 24th, Approx. 04:00	A-01 makes a sortie from Yokohama Base
December 25th, Approx. 08:56	The operation commences. It shifts from Phase 1 to Phase 2
December 25th, Approx. 10:09	The operation shifts to Phase 3
December 25th, Approx. 12:00	The operation shifts to Phase 4
December 25th, Approx. 12:43	Hive infiltration forces suffer catastrophic losses after a BETA attack. At the same time, enemy reinforcements appear on the surface and the plan shifts to Plan B. A-02 (Susano-O Mk. II) reaches the planned firing position. It destroys Target 21's monument in two shots. After firing, the Susano-O Mk. II becomes uncontrollable and falls out of action. The operation proceeds to Plan G, but a brigade-scale group of secondary enemy reinforcements appear in a wide range around Sadogashima. A corps-scale third wave of reinforcements appears near A-02 and commences heading southwards towards the mainland. The operation shifts to Plan D.
December 25th, Approx. 15:27	The operation shifts to Plan G again. The Sadogashima Hive is eliminated by the Susano-O Mk. II's self-destruction, and the operation ends



Operation 21st

Shifts in the Early Stages of The Operation

On the daybreak of December 23rd, 2001, Operation 21st was announced by the UN 11th Force Headquarters to all of the Far East UN Forces.

By this time, the forces participating in the operation, from both the UN and the Empire, had already assembled on the coast of the Sea of Japan, and preparations were steadily being made for the operation date, the 25th.

By 04:00 of the 24th, A-01 had been sent out from Yokohama Base.

After heading to the IJF's Takada Base and activating all craft, they boarded the IJN's Carrier Ookuma, and headed towards Sadogashima by sea.

At 08:56 the following day, the 25th, Phase 1 of the operation commenced with orbital bombardments of AL shells from the UN Space Force's Reentry Destroyer Fleet.

Using the separation of reentry shells from the orbital fleet as a signal, the Imperial Combined Fleet 2nd Squadron, which had been deployed to the deep waters of Mano Bay, commenced saturation attacks targeted at Kawaharada.

This was a two-stage attack with a main bombardment of AL shells followed by multi-purpose shells, with the expectation that the first wave would be intercepted by BETA and form heavy metal clouds. The surface suppression was conducted on such a large scale that approximately 70% of the ammunition of the fleet was used (equivalent to 50% of the total stockpiled ammunition of the Far East UN Forces and the IJF).

With the satisfactory progression of Phase 1, the operation entered Phase 2.

The Whiskey landing fleet had rushed into the interior of Mano Bay and a frontal assault landing was conducted by the IJN 17th Tactical Armored Squadron and Whiskey Unit.

Although the landing vessels suffered significant damage due to enemy interception from the coast, the deployment of the forces to the east coast of Sadogashima had been smooth, and the operation had gone smoothly, up to this point.

As the operation shifted to Phase 2, A-02 was also sent out from Yokohama Base, and was advancing towards Old-Toyooka City on Sadogashima.

Seventy-three minutes after the operation's commencement, Whiskey Unit secured their planned front and were succeeding in maintaining it.

Once a division-scale BETA group had been identified as heading southwards from Target 21 in response to this, the operation shifted to Phase 3.

The Imperial Combined Fleet 3rd Squadron and the UN Pacific Fleet provided suppressive fire from the edges of Ryotsu Bay, towards Old-Ryotsu City, and at the same time, the Echo landing fleet, which had headed down south at maximum battle speeds towards Ryotsu Bay, had started to land.



When the Echo landing fleet reached the shore, A-01 departed from Ookuma, before landing on the east coast of Sadogashima.

Preparing for the West Coast Assault and the Hive Infiltration - The Initial Positions of Tactical Armored Battalions

The IJN 17th Tactical Armored Squadron, consisting of forces such as Stingray Squadron, had been sent out from Takashio and other submarine TSF carriers, and had gone ahead to secure a landing point on the Yahata Dunes.

At the same time, Whiskey Unit had departed one by one from the landing fleet, before reaching the shore.

However, during this, the landing fleet suffered a laser attack from Heavy Laser classes on the coast, and a total of 81 vessels were sunk, including 49 TSF carriers such as Takao, and 52 vessels were heavily damaged.

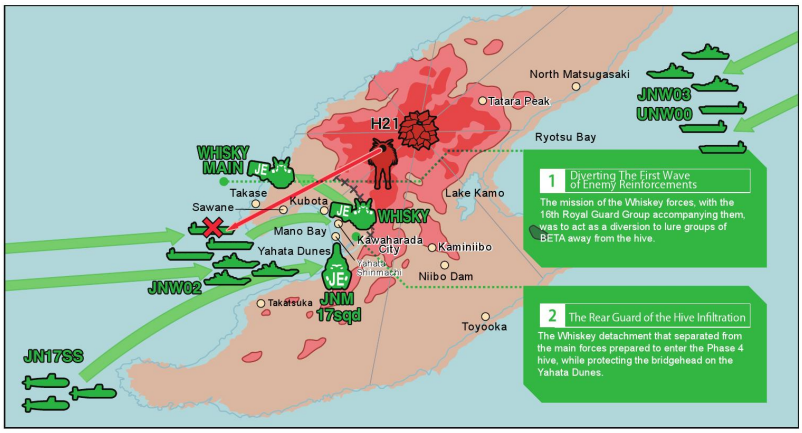
The Combined Fleet 2nd Squadron, which had completed its surface suppression of the Old-Kawaharada City region continued their attack, though this time, directed at Old-Yahata Shinmachi.

While receiving this supporting fire, Whiskey forces managed to secure Old-Yahata Shinmachi as well as Old Kawaharada City, even while suffering a loss of 7% of their forces.

Furthermore, the main force of Whiskey, which was conducting the diversions, sought to split and head south to Old Takatsuka to maintain the front.



The landing fleet suffering laser attacks from the Laser class BETA. The moment where they launch TSFs are when the carriers are at their most vulnerable, and it is considered the most difficult stage during landing operations.



Deployments for Phase 3 - The Diversions Across Sadogashima

As the operation shifted to Phase 3, the Combined Fleet 3rd Squadron and the UN Pacific Fleet in Ryotsu Bay commenced suppressive fire towards Old Ryotsu City. At the same time, the IJN 4th Tactical Armored Squadron landed and secured Old Ohno.

Furthermore, the Echo landing fleet rushed into the ruins of Ryotsu Bay at maximum battle speed, and the landing of Echo was conducted.

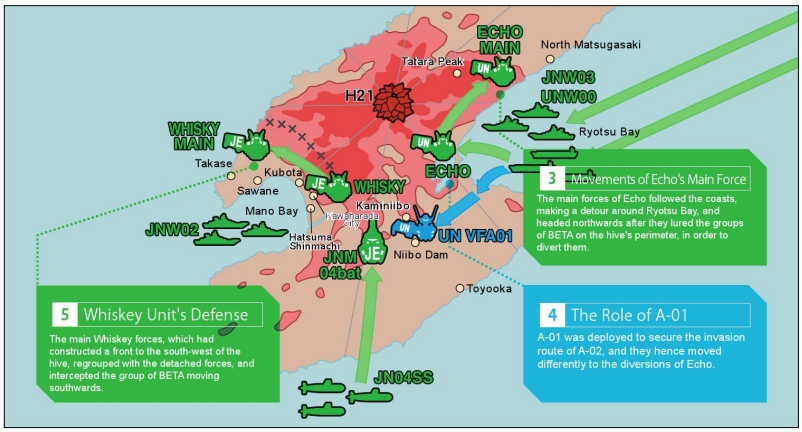
Echo, which had landed near Sumiyoshi, had their advance forces construct a front along the east coast of Lake Kamo, while their main forces headed northwards towards Old Washizaki, by going through Mt Tadara from Old Hayoshi.

Meanwhile, A-01, which had landed with Echo, headed southwards towards Old Kaminiibo in order to secure the planned firing position of A-02.

The Whiskey forces on the western part of the island were constructing fronts in Old Sawane and Old Takase, while the rearmost forces abandoned Old Kubota to head west.



Although combat broke out between Echo and the BETA that had survived the bombardments, the operation smoothly progressed to Phase 3, with no more losses than expected.



Infiltrating The Hive

Approximately 184 minutes had passed since the start of the operation, and it had been progressing entirely within expectations up to Phase 3.

Both Whiskey and Echo had succeeded in luring the groups of BETA towards the east and west of the island, and the operation headquarters notified all forces of the operation's shift to Phase 4, in light of this situation.

Upon receiving this information, the reentry shells separated from the UN Space Force Command Fleet, which had been circling in orbit, and the reentry of the 6th Orbital Drop Corps was conducted.

At this point, A-02's advance neared Nagaoka City in Niigata Prefecture.

Approximately 227 minutes into the operation, which was 32 minutes after the 6th Orbital Drop Corps had infiltrated the hive, the Sauber, Ghost, and Razor Squadrons of that group secured the 12th stratum's N19 (Hall).

Furthermore, Whiskey's J and K Groups, which were trailing behind, completely suppressed up to the 10th stratum, and L Group reached M15 (Hall).

With even M and N groups trying to infiltrate the main shaft via a different route, the infiltration of the hive interior was going well.



Some of the reentry shells of the 6th Orbital Drop Corps, which had conducted a reentry from the north-east of Sadogashima, had landed on the surface.

Following Up the Successful Diversion - Hive Suppression and the Orbit Divers' Infiltration

Up to this point in time, the attrition rates were as follows: Whiskey at 33%, Echo at 13%, the 2nd and 3rd Squadrons of the Combined Fleet at 4% and 6% respectively, and the UN Pacific Fleet at 5%. Furthermore, the diversions had been carried out without issue.

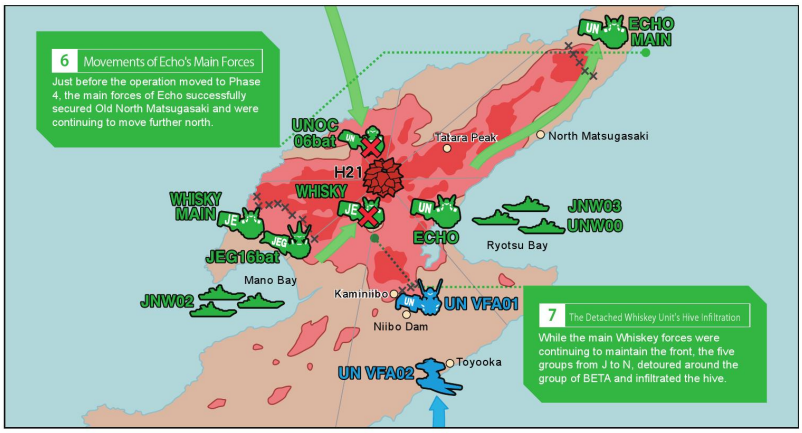
When the operation shifted to Phase 4, the reentry of the 6th Orbital Drop Corps was conducted almost simultaneously to A-01 securing the invasion line in Old Kaminiibo for A-02, and an infiltration of the hive was carried out using the standard procedure of orbital drop operations.

Following this, the detached Whiskey forces also infiltrated the hive one by one, and were securing logistics lines within the stab.

For 32 minutes since the reentry of the 6th Orbital Drop Corps, there had only been sporadic combat with several dozen Tank classes, and the advance units reached a depth of 440m from the surface. The previous record for depth reached in a Phase 4 hive was 551m.



Although a malfunction had been observed with the wired data link, the invasion of the hive interior was going so smoothly that the Surface Pilots of the infiltration forces felt underwhelmed, having expected greater opposition.



The Significance of the Susano-O Mk. II In Operation 21st

Operation 21st was the first operation where a tangible achievement of Alternative 4 was deployed into combat, and it was the first opportunity for the Susano-O Mk. II to be in the public eye.

However, the craft was nothing more than a suit of armor to allow 00 Unit to safely be sent into the battlefield. Even during the operation, the combat results of the Susano-O Mk. II were not the main focus of the Alternative 4 headquarters.

Rather, Alternative 4 had valued the political balance revolving around the program, and the confidentiality of 00 Unit, and so tried to hide their true goals by flaunting the Susano-O Mk. II as a weapon.



XG-70b Susano-O Mk. II

Built from the XG-70 that was requisitioned from the US, this weapon was the result of an initiative to expand the functions of 00 Unit, in order to increase its survival rate. Within Alternative 4, it was referred to as the WS-110A.



During Operation 21st, it displayed its overwhelming capabilities as an anti-BETA weapon, astounding all those who witnessed it.



The operation was designed mainly around the Susano-O Mk. II, and A-01 was also assigned the protection of the craft as their top priority objective.

The Anti-Hive Tactics of The Operation

Target 21 had been constructed on Sadogashima, which sits in the Sea of Japan, and was typical of coastal hives.

Due to this, a large scale suppression by naval vessels, and assault landing tactics using amphibious TSFs had all functioned effectively during Operation 21st.

In particular, the former was a conventional practice for capturing enemy bases on coastal areas. By pouring in 50% of the total stockpiled ammunition of the Far East UN Fleet and the IJF, the initial stages of the operation were able to progress smoothly.



Stingray Squadron, which operated the Type 81 Wadatsumi, made a significant contribution during the assault landing on the Yahata Dunes.

The Limits of Anti-BETA Tactics

The greatest weapon of the BETA is their overwhelming numbers, and the frontlines even in Operation 21st collapsed under forces that vastly surpassed estimates.

Examples of this included situations where resupplying was not able to keep up with the ammunition expended to confront the BETA's numbers, as well as how the swapping between normal and AL shells was not performed fast enough to respond to Laser classes which appeared one after the other.

This operation had once again revealed the threat of the BETA.

The Tables Turn On the Combat Situation

Soon after the 6th Orbital Drop Corps suppressed the 12th Stratum N19 (Hall), the several forces below Sauber Squadron detected a BETA group of over 40,000 units that had started to advance towards the surface from the 13th stratum. Immediately afterwards, communications with all infiltrating forces blacked out.

Faced with this situation, the Whiskey M and N groups, which were about to enter the first stratum, began to withdraw to the surface, and the operation's headquarters decided to shift the operation to Plan B.

Thus, the operation shifted to the neutralization of Target 21 by using A-02.

However, a BETA group on the scale of several divisions had stormed to the location from which A-02 was about to start its attack, and A-01, which was on watch, constructed a defense line in the Niibo Dam ruins, 2000m ahead of the planned location, and intercepted the BETA from there.

Furthermore, all fleets conducted support bombardments in the areas that were designated as A-01's combat zones, now that the fleets were prioritizing the support of A-02.

Due to this, the other armored forces, which could no longer receive support from the fleets, were at a disadvantage.

In particular, the forces that had been fighting since the initial stages of the operation had suffered significant losses, and as A-01 entered combat, the attrition rates had climbed to 55% for the Whiskey forces, and 37% for Echo.

Whiskey had narrowly managed to maintain the Old Takase-Sawane defense line, following an emergency deployment of the Royal Guard 16th group to help defend it, and the main forces of Echo had constructed a defense line at Mt. Yunomine. However, the remaining ammunition of all fleets participating in the operation had dipped to below 20%, and the operation had come to be hinged upon A-02.

Under these circumstances, A-02 infiltrated the combat zone of Sadogashima and entered its final sequence.

Despite being hit twice by lasers from surviving Heavy Laser classes, it suffered no damage, and it completely destroyed the monument of Target 21 by firing its charged particle cannon.

On top of this, the groups of BETA that had been deployed to the monument's perimeter had nearly all been wiped out.

However, immediately after firing for the second time, A-02 suddenly lost all control and ran aground at its position at 37°59'25"N 138°28'15"E.

Since the craft didn't even accept the restart code from the operation's flagship, Executive Officer Kouzuki decided to shift to Plan G, which called for the disposal of the Susano-O Mk. II by detonating it.

Kouzuki also ordered A-01 to recover 00 Unit.



Something truly spectacular was the brave fighting of the 16th Royal Guard Group, even as the front was on the verge of collapse, due to the BETA reinforcements.

The Local Combat to Defend A-02's Firing Position and the Astounding Combat Results of A-01

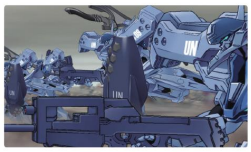
The group of BETA that was heading towards A-02's firing position was split between a vanguard of Destroyer classes moving at 90km/h and a main force including Laser classes moving at 60km/h.

In response to this, A-01 cut the main engines of their TSFs, while taking advantage of the valley-shaped terrain of the Niibo Dam ruins to wait for the Destroyer class vanguard to pass them, at which point, A and C flights attacked the isolated enemy vanguard from behind.

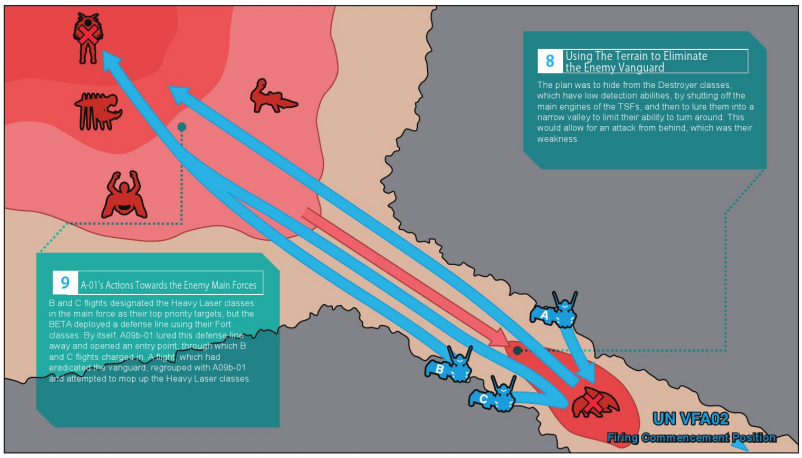
After this, B flight was joined by C flight, which turned back, to rush into the enemy's main forces with supporting fire from the fleet, in order to eliminate the Heavy Laser classes in the rear.

During this combat, A-01 successfully eliminated many BETA, including twenty-seven Heavy Laser classes, though at this point, twelve such classes remained.

Notably, A09b-01, which had performed a diversion by itself during the rush on the main forces, achieved a brilliant combat result of destroying over twenty Fort classes by itself.



A-01 managed to halt the group of BETA with only a single squadron, and displayed actions worthy of their title of 'The Unit Under Alternative 4's Command'.



Plan B - Interrupted by a Sudden Accident

After A-01 finished their defense, A-02, which had been advancing across the Sea of Japan with creeping flight, reached its attack commencement position.

Although it received two laser attacks (the first coming from eight Heavy Laser classes, and the second coming from four), the damage to the main engine was within a permissible range, despite some concerns, and the operation headquarters conducted the neutralization of Target 21 using A-02's charged particle cannon.

With the first shot of the charged particle cannon, the hive's monument completely collapsed, leaving only its base.

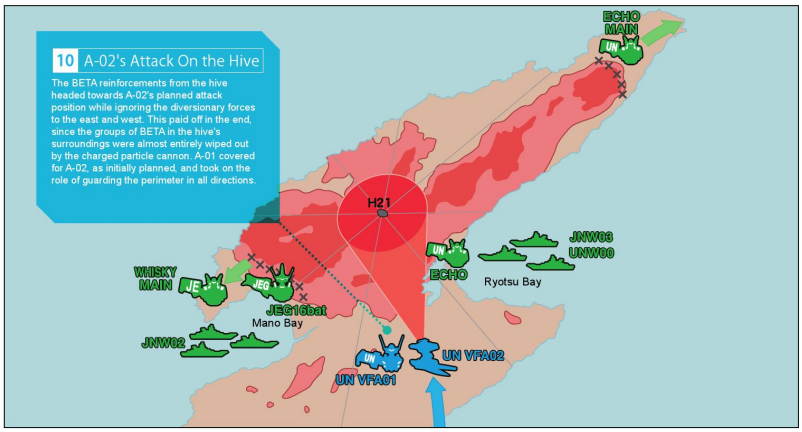
Furthermore, the groups of BETA that had been deployed to the south, southwest, and southeast areas were wiped out.

However, ten seconds after A-02 fired for the second time, it became uncontrollable, and its main engine shut down.

This was an unforeseen situation, caused by 00 Unit entering a standby mode.



The scene of it blowing away the hive's monument in a single shot gave much hope to the personnel taking part in the operation.



Target 21 Vanishes

When the operation shifted to Plan G, A-01 went to recover 00 Unit, and all naval vessels began preparing to recover the landing forces.

However, in response to these movements, a BETA group of a scale larger than a division emerged from a wide area around Sadogashima. This brought the Mano Bay coast, which was near 00 Unit's escape route, under attack from groups of BETA, which included Heavy Laser classes.

The IJF then secured an escape route by creating a diversion using their 2nd Squadron. Executive Officer Kouzuki decided on having the A09b-01, the craft to rescue 00 Unit, escape to the ocean, after having A-01 go ahead and secure a safe passage.

It appeared that an escape route had been secured by the brave fighting of the 2nd Squadron, which had rushed into Mano Bay, as well as that of A-01's advance party, which had mopped up the group of BETA at Old Kokubunji.

However, as soon as A09b-01 reached the S Area, a brigade-scale BETA group appeared from the north and advanced towards A-02.

Furthermore, the group of BETA along Mano Bay split east and west, and began moving southwards to block the escape route, but A09b-01 managed to rally with the A-01 advance units, escape to the ocean, and reach the flagship fleet.

Meanwhile, the 2nd Squadron, which had completed its diversion, remained in the bay to support the withdrawal of the Whiskey forces, but it was at that point that a corps-scale BETA group emerged from around A-02 and it was revealed that they were heading southwards underground towards the Japanese Mainland.

Executive Officer Yuuko ordered a shift to Plan D in response to this situation, but when it became impossible for Captain Isumi Michiru to escape the BETA encirclement, Yuuko decided to shift the operation back to Plan G.

Captain Isumi waited for the fleet to reach safety, before manually initiating the main engine of the Susano-O Mk. II to self-destruct.

Sadogashima vanished in the explosion, resulting in only the most fundamental objective of the operation being achieved, which was to eliminate Target 21.

A-01's Combat - Prioritizing The Recovery of 00 Unit

Plan G was focused around A-01's members. 2nd Lieutenant Shirogane Takeru took on the role of recovering 00 Unit, while Captain Isumi's task was to start up the autonomous control of the Susano-O Mk. II and make it detonate. A09b-02 and A09c-03's roles were to support the former, while the other units went ahead to eliminate any BETA.

However, as A09c-03 suffered a hit during an encounter with BETA while escaping, it was unable to take on the task of accompanying A09b-01.

Instead, it returned to the position where A-02 had run aground, in order to support Captain Isumi's escape.

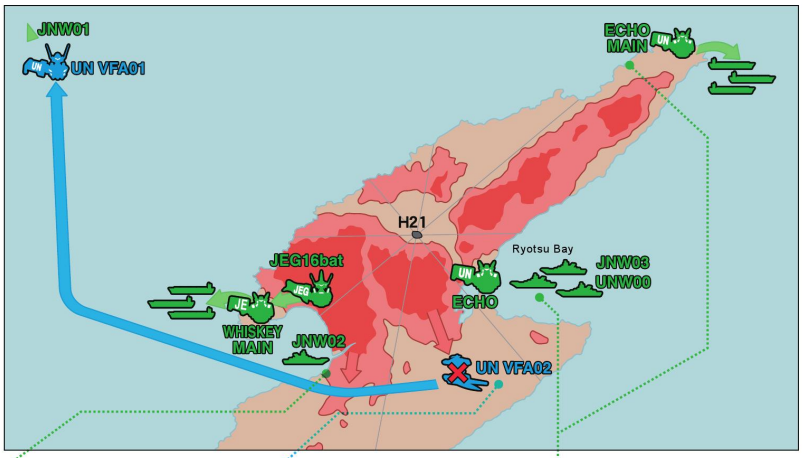
After this, 00 Unit was successfully recovered, with support from the 2nd Squadron.

However, as this was occurring, the work on the Susano-O Mk. II was facing problems, and A09c-03 had been destroyed in combat with BETA, with 2nd Lieutenant Kashiwagi Haruko confirmed as KIA.

Captain Isumi, having determined that escape was impossible, manually caused the main engine to go out of control, and the resulting explosion erased Target 21 along with the entirety of Sadogashima.



Captain Isumi sacrificed her own life to eliminate Target 21 and stop the BETA from reaching the mainland.



11 The Tactics Around Mano Bay

Following the shift to Plan G, Whiskey forces sought to regroup on the recovery vessels, which had been deployed off the coast of Nanaura, as the Royal Guard 16th Group maintained the front while falling back. Furthermore, the 2nd Squadron rushed into Mano Bay to create a diversion, in order to support the retreat of Whiskey Unit, as well as to secure an escape route for 00 Unit. As a result of this, the vessels suffered significant damage, though all forces narrowly managed to withdraw.

12 Movements of the BETA Group Towards the Mainland

The corps-scale BETA group that had emerged around A-02 had been advancing underground, towards the mainland. However, they were lured towards the Moorcock-Lechte Drive, which had gone out of control, and a majority of them were erased. Captain Isumi was declared KIA after A-02's self-destruction.

13 The Situation of Echo Unit

The Echo fleet maintained support bombardments to stop the group of BETA, which was heading south towards A-02. Echo Unit had been recovered by the TSF carrier vessels off of the Hajikizaki coast, and successfully withdrew.

The Achievements and Scars of The Operation

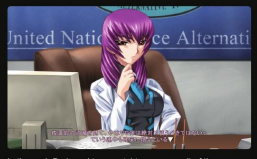
With the disappearance of the Sadogashima Hive, Operation 21st was technically a success, though the losses suffered by humanity were also significant.

In particular, the significant loss of forces in the IJF forced restrictions on the anti-BETA strategies that followed.

Due to this, the Alternative 4 Headquarters changed its policy regarding the operation to capture the Cheorwon Hive, which was planned to be the next operation in line, into being a collaborative effort with COSEAN forces, rather than with the IJF as originally planned.

Furthermore, the pro-Alternative 5 groups in the US and UN regained momentum from the result of the Susano-O Mk. II's self-destruction, which was the equivalent of the G-Bomb, making it look like a shadow had been cast over the continuation of Alternative 4.

However, with this operation, Alternative 4 gained information that was so valuable that it would significantly change their later circumstances.



In the end, Sadogashima vanishing as a result of the Susano-O's self-destruction led to increased confidence in the beliefs held by groups both for and against the G-Bomb.

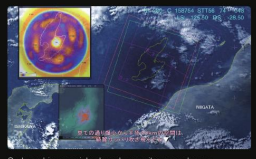
Strategic and Geographic Influence

The loss of control (supercritical reaction) of the Susano-O Mk. II's Moorcock-Lechte Drive was the equivalent of 20 G-Bombs. Everything within a 40km radius of the hypocenter was literally erased, including Sadogashima, which vanished from the map.

Furthermore, the plains of the Japanese coastal areas from the Noto Peninsula to the Oga Peninsula were flooded due to massive tsunamis caused by the explosion, and when functions of bases in the surrounding areas were lost, the IJF was forced to pull back the secondary defense line by 20km.



The truth behind the Susano-O Mk. II's explosion was kept hidden, and it was formally announced to be the result of several G-Bombs that were deployed by the UN Forces.



Sadogashima vanished, and a gravity anomaly was identified in a wide area around the center of the explosion.



December 29th, 2001 - Middle of the night. Warnings suddenly rang out across mainland Japan, which was about to greet a New Year while the memories of the cheering over the Sadogashima Hive's elimination still lingered. This was an invasion of the mainland by the BETA - a large-scale group of BETA, which were thought to have used Sadogashima as a base, were now conducting a long distance invasion, deep underground, and their target was Yokohama Base. There was no spare capacity for the IJF to send reinforcements, due to the earlier fierce battle at Sadogashima, and so the UN Forces at Yokohama Base was pressed into combat with a BETA group of over 40,000 with just over 250 TSFs. Having fallen for the BETA's diversionary tactics, which had only been seen for the first time, mankind had allowed the BETA to breach the base facilities. What would be the final measure, handed down to protect humanity's trump card, in the hopeless situation where friendly forces fell one after the other...?

Yokohama Base Defense

COURAGE UNDER FIRE

Illustrated by Sangoku Musou



December 29, 2001

Defense of Yokohama Base

The Unprecedented Crisis of the Assault On Yokohama Base

During Operation 21st, which had been carried out on the 25th of December, 2001, the Far East UN Forces and the IJF had trouble dealing with the larger than expected numbers of BETA.

For the said operation, the groups of BETA that emerged across the Sadogashima area were of a number that far exceeded data associated with Phase 4 hives, and their attacks in waves, which relied on their numbers, was one of the reasons why Plan G (to self-destruct the Susano-O Mk. II) was forced to be put into action.

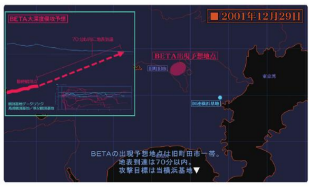
This quantity of BETA, far beyond the expectations of the operation's headquarters, would later cause a serious crisis.

The groups of BETA that were supposed to have existed on the ocean floors surrounding Sadogashima during Operation 21st had flooded into what was once known as Target 22, the UN Forces Yokohama Base.

Their numbers were of a scale unthinkable for remaining forces of an eradicated hive, and since it was an invasion through the deep underground stab of Target 21 that was thought to have extended to within Honshu, the detection of the group of BETA was delayed, and so Yokohama Base fell into an unprecedented crisis.

The IJF, which was normally responsible for stopping the BETA from invading Honshu, had lost over half of its total force after the successive military operations of the 12-5 Incident and Operation 21st, and was at its limit with strengthening the defenses of the Imperial Capital.

Therefore, the UN Forces in Yokohama Base was forced into combat to protect the backbone of Alternative 4 from a BETA group of several dozen thousands, using only their own forces.



Several negative factors came into play at once, such as the deep underground group of BETA advance being difficult to detect, and how the early warning system of the IJF defense line had not fully recovered from the losses at Operation 21st. These resulted in the successful surprise attack on Yokohama Base.



Executive Officer Kouzuki had supposed that the remaining BETA would head to either Cheorwon or to the continent, but this assumption would end up being incorrect in the worst way possible.



It is inferred that the purpose of the group of BETA assaulting the Yokohama Base was to resupply energy, which is required for them to be active.

The BETA Assault Reveals a Gap in the Defense

For a long time, the Alternative 4 Headquarters had been requesting the Pacific Region 11th General Headquarters to revise the anti-BETA tactics of the UN garrison, in order to prepare for any emergency.

However, the general headquarters continued to reject this, since they believed that Yokohama Base was far from the front lines.

There is the possibility that the feuds regarding the Alternative Program played a role in this, but in any case, Yokohama Base was forced to respond to the situation without adequate preparations.

However, even if they had been properly prepared, it can be said that the situation would not have changed. After all, the IJF and UN Forces in Japan were so worn out immediately after the previous operation, that reinforcements would not have been possible regardless.



Executive Officer Kouzuki had been questioning the abilities of the forces in Yokohama Base, which had revealed their fragility during the earlier XM3 BETA Incident.



Around the time the incident occurred, the IJF was in the midst of reorganizing its forces, in order to bolster the defense line of the Kyushu region.

■UN Forces

As the UN Forces in Yokohama Base had not offered most of its forces to Operation 21st, their conventional forces had not been worn down in the operation.

However, the construction of the second Susano-O Mk. II, which was their strongest force, was not completed when the raid occurred, and they would end up responding to the situation with forces stationed at the base, which was centered around a force of just under 250 TSFs.

UN Forces Deployment

Special Task Force A-01 Squadron | UN VFA-01

A Flight UN VFA-01A
Lt Hayase Mitsuki Type 94 Shiranui / A09b-00 (Valkyrie 1)
2nd Lt Sakaki Chizuru Type 94 Shiranui / A09a-01
2nd Lt Yoroi Mikoto Type 94 Shiranui / A09a-02
2nd Lt Tamase Miki Type 94 Shiranui / A09a-03

B Flight UN VFA-01B
2nd Lt Shirogane Takeru Type 94 Shiranui / A09b-01 (Valkyrie 2)
2nd Lt Mitsurugi Meiya Type 94 Shiranui / A09b-02
2nd Lt Ayamine Kei Type 94 Shiranui / A09b-03

C Flight UN VFA-01C
Lt Munakata Misae Type 94 Shiranui / A09c-00
2nd Lt Kazama Touko Type 94 Shiranui / A09c-01 (Valkyrie 4)
2nd Lt Suzumiya Akane Type 94 Shiranui / A09c-02
※All craft equipped with the Type 92 Multi-Purpose Supplemental Armor

CP Officer
Lt Suzumiya Haruka CP-A09 (Valkyrie-mom)
※All personnel mentioned below are provisionally organized

α 1 Provisional Squadron

A Flight
Lt Tsukuyomi Mana Type 00F Takemikazuchi / 1901 (Blood 1)
2nd Lt Kamiyo Tatsumi Type 00A Takemikazuchi / 1902
2nd Lt Tomoe Yukino Type 00A Takemikazuchi / 1903
2nd Lt Ebisu Minagi Type 00A Takemikazuchi / 1904

B Flight
Lt Munakata Misae Type 94 Shiranui / A09c-00
2nd Lt Suzumiya Akane Type 94 Shiranui / A09c-02
2nd Lt Mitsurugi Meiya Type 94 Shiranui / A09b-02
2nd Lt Ayamine Kei Type 94 Shiranui / A09b-03

C Flight
2nd Lt Kazama Touko Type 94 Shiranui / A09c-01 (Valkyrie 4)
2nd Lt Sakaki Chizuru Type 94 Shiranui / A09a-01
2nd Lt Yoroi Mikoto Type 94 Shiranui / A09a-02
2nd Lt Tamase Miki Type 94 Shiranui / A09a-03

α 2 Element
Lt Hayase Mitsuki Type 94 Shiranui / A09b-00 (Valkyrie 1)
2nd Lt Shirogane Takeru Type 94 Shiranui / A09b-01 (Valkyrie 2)

α 3
Guard Flight α3-1
Lt Suzumiya Haruka α3-2

CP Officer
Lieutenant Irina Pyatkh HQ

1st Tactical Armored Battalion | UN 01bat

2nd Tactical Armored Battalion | UN 02bat

3rd Tactical Armored Battalion | UN 03bat

4th Tactical Armored Battalion | UN 04bat
Victor Group F-15J Kagerou / Victor 1-4

5th Tactical Armored Battalion | UN 05bat
Blizzard Squadron

6th Tactical Armored Battalion | UN 06bat

7th Tactical Armored Battalion | UN 07bat
Rapier Squadron F-4J Gekishin / Rapier 1
Hawk Squadron F-15J Kagerou x4 / Hawk 1-4
Grizzly Squadron F-4J Gekishin x4 / Grizzly 1-4
Dragon Squadron F-15J Kagerou / Dragon 1
Joker Squadron F-15J Kagerou / Joker 1
Circus Squadron F-4J Gekishin / Circus 1, 4
Flame Squadron F-4J Gekishin / Flame 1
Liger Squadron F-4J Gekishin / Liger 1
Tomahawk Flight F-4J Gekishin / Tomahawk 1-4
Lotus Squadron F-4J Gekishin / Lotus 1-4
Gamble Flight F-4J Gekishin / Gamble 1-4

Artillery Support Forces
105 Air Support Corps
1st Air Support Group
2nd Air Support Group
3rd Air Support Group
4th Air Support Group
5th Air Support Group
6th Air Support Group
7th Air Support Group

101st Mechanized Infantry Regiment | UN 101reg
108th Mechanized Infantry Regiment | UN 108reg
116th Mechanized Infantry Regiment | UN 116reg

■IJF

The Empire of Japan, the hosts of Alternative 4, was concerned about the situation of the BETA raid on Yokohama Base.

However, the IJF, which was in the process of reorganizing defense lines, as well as strengthening the Kyushu Front, did not have excess forces to spare, and it was difficult for them to support the UN Forces.

Even so, they conducted as much support as possible with artillery forces such as the IJN 1st Squadron, and near the final stages of combat, they also deployed tactical armored forces that had been extracted from the Capital Defense Forces, in order to cut off follow up groups of BETA.

Imperial Japanese Military Deployment

Imperial Combined Fleet 1st Squadron | JNW 01
Battleship Kii
Battleship Izumo
Battleship Owari

IJF MLRS Forces

IJF Tactical Armored Forces

IJN 8th Squadron
Type 81 Wadatsumi

■Royal Guard

The only members of the Royal Guard that had participated in Operation 21st were the 16th Group, and so the Royal Guard had not suffered any significant damage, compared to the Army or Navy.

However, much like the regular army, they had been incorporated into the reorganization of the Kyushu Defense Line, and even the 19th Independent Guard Flight, which was stationed at Yokohama, was also planned to be transferred to the IJF Chitose Base.

Just as that was about to happen, the raid on Yokohama Base occurred, and so these units would participate in the defense.

Imperial Japanese Royal Guard Deployment

Royal Guard 19th Independent Guard flight | JEG19fli
Lt Tsukuyomi Mana
Type 00F Takemikazuchi / 1901 (Blood 1)
2nd Lt Kamiyo Tatsumi
Type 00A Takemikazuchi / 1902
2nd Lt Tomoe Yukino
Type 00A Takemikazuchi / 1903
2nd Lt Ebisu Minagi
Type 00A Takemikazuchi / 1904
※Group name: 'Bloods'

The Shadow Left by Operation 21st's Influence

To create predictions of BETA invasions, the trends in their movements are usually analyzed from sources such as observation data from early warning satellites.

In cases where BETA are invading underground, vibration waves are observed instead.

As the behavioral principles of the BETA have remained unclear, there has been no set method to deal with their movements, except for responding to them on a case-to-case basis.

As of this raid on Yokohama Base, the secondary defense line of the IJF had fallen back by 20km following Operation 21st, and the surveillance system had also weakened.

Due to this, the detection of BETA and the subsequent response of Yokohama Base were both delayed.

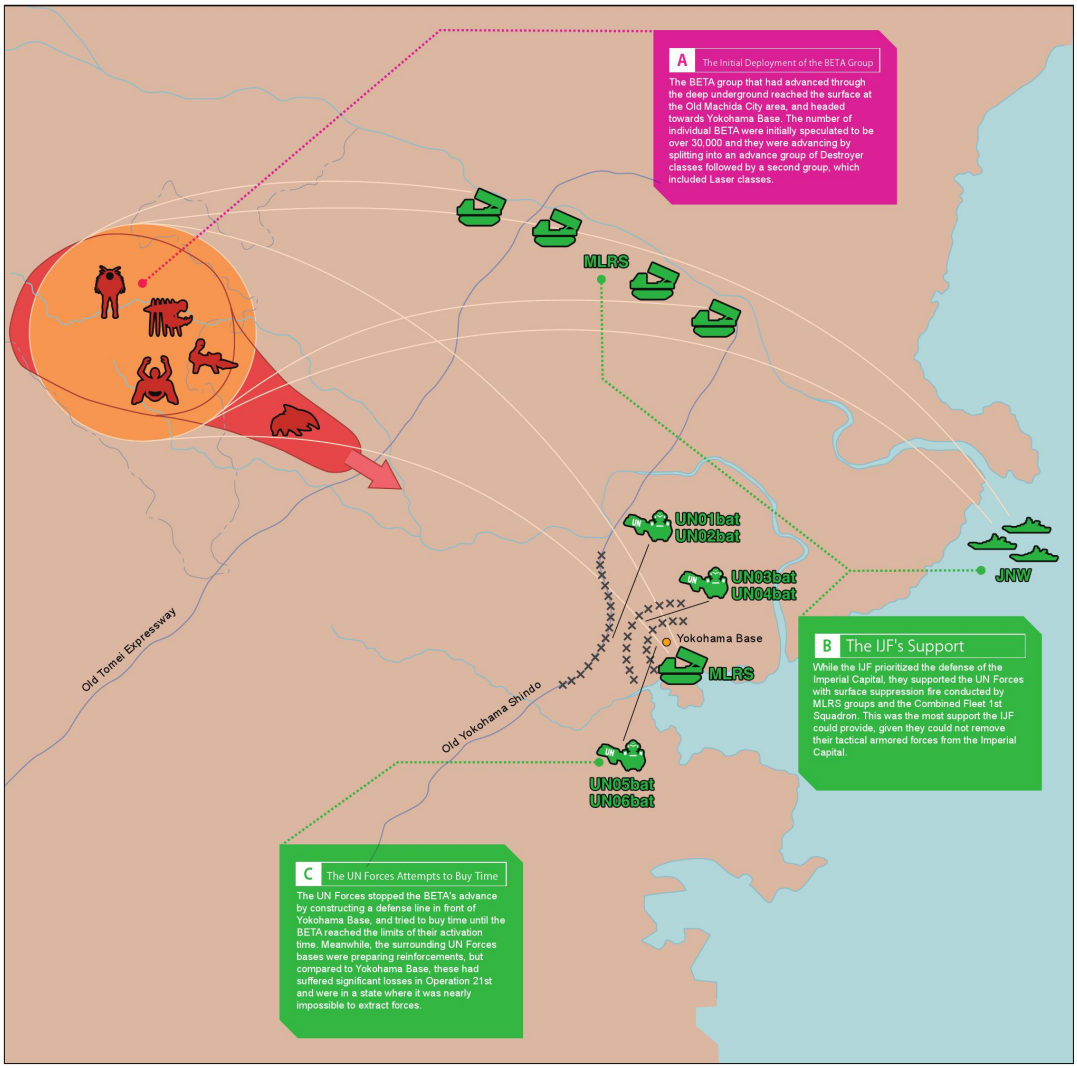
Furthermore, judging by the fact the group of BETA belonging to Target 21 had greatly surpassed estimates, the situation only became more dire.

After the operation, the senior officials of the UN Forces and IJF had assumed that with the eradication of the Sadogashima Hive, the remaining BETA would retreat to hives on the continent, which were areas under BETA control. But in fact, the several dozens of thousands of BETA that had escaped the eradication of the hive had set their course towards their old base, Target 22, the Yokohama Base, which was now occupied by humans.

From these discrepancies in assumptions, compounded with the delays in detection, the Defense of Yokohama Base would begin in a state of hopelessness. Since the situation occurred immediately after Operation 21st, the surrounding UN Forces bases in Japan could not send reinforcements, due to the damages incurred, and Yokohama Base was forced into defenses alone, without any support.

Developments in The Incident

December 29th, Approx. 02:00	The IJF observation bases in Takasaki and Chichibu detect an underground advance of a group of BETA
December 29th, 02:17	The UN Forces Yokohama Base announces a stage 2 Defense Readiness Condition.
December 29th, Approx. 03:30	The group of BETA reaches the surface of the Old Machida City area and combat breaks out The defense line collapses due to two surprise attacks, and a group of BETA infiltrates the base's facilities The group of BETA infiltrates the main shaft. Work to halt the reactor commences The IJF deploys tactical armored forces as reinforcements Halting the reactor is abandoned when α3 is wiped out. The plan shifts to destroying the reactor The reactor completely ceases activity after an explosion by an S-11. The remaining groups of BETA begin to retreat
December 30th, 19:33	The IJN 8th Squadron loses sight of the surviving groups of BETA in the Sea of Japan



The Defense of Yokohama Base

The Unexpected Situation

In the middle of the night of the 29th of December, the IJF's Takasaki and Chichibu observation bases detected a faint vibration source travelling through the ground.

It was revealed that this was a BETA group of 20,000 to over 30,000 that had been advancing deep underground towards the UN Forces Yokohama Base, and a warning was sent out after 2:00.

Upon being informed of this, the Yokohama Base headquarters announced a stage 2 Defense Readiness Condition at 2:17.

At that point in time, it was anticipated that the group of BETA would reach the surface at Old Machida City within approximately 70 minutes, and the enemy vanguard would reach the base in 20 minutes after that.

Meanwhile, the IJF had sent the Combined Fleet First Squadron and MLRS forces as reinforcements, but as they had determined the defense of the Imperial Capital to be of top priority, they did not dispatch tactical armored forces.

Furthermore, they were in a situation where they could not seek reinforcements from other UN Force bases across several locations, and the UN Forces in Yokohama Base would attempt to intercept the group of BETA, which was closing in, with a triple-layered defense line, with each layer composed of two tactical armored battalions.

The UN Forces had initially planned to wait for the vanguard of Destroyer classes to stick out due to their superior speed. After this, the second group, which was thought to include Laser classes, would surface, and this group would be eliminated with surface suppression bombardments from support forces stationed on the first runway of the base, and by long range bombardments from the IJF forces deployed on the border of the prefecture.

They would try to hold off the enemy's first group, which would have gone ahead, with the first defense line in the Yokohama Shindo ruins, which was made up of the 1st and 2nd Tactical Armored Battalions.

However, the BETA had conducted a diversion where they used the forces advancing from Old Machida City as a decoy, and had detached a group to conduct a surprise attack from underground on the second defense line.

The defending forces were thrown into disarray, faced with the abnormal situation of the BETA utilizing tactics, and the reconstruction of each defense line and the expansion of areas for air and firing support fell behind schedule.

Furthermore, a second underground ambush from the enemy was conducted immediately after, at the first runway.

The artillery forces fell into a state of confusion, which gave the group of BETA the opportunity to take advantage of their disorganization and break through the defense line to reach the second runway.



Commander Paul Radhabinod had the role of commanding the base defense, and he displayed flexible responses to match the changes in the combat situation. However, the deployment of forces by the BETA, which included surprise attacks, surpassed such flexible responses, and the UN Forces was being steadily backed into a corner.

4 Support Collapses After the Second Ambush

Although the 3rd Air Support Group and part of the 7th Battalion were sent to defend the first runway, which had been ambushed, the support forces suffered catastrophic losses soon after combat began, and a group of BETA rushed down towards B Gate.

The BETA's Surprise Attack Destroy The UN Forces Positions

The UN Forces had constructed its first defense line with the 1st and 2nd Tactical Armored Battalions along the Old Yokohama Shindo ruins, and the 3rd and 4th Tactical Armored Battalions would form the second defense line behind the first, on the outer edges of the base. The third defense line was established on the training grounds northwest of the base, and was composed of the 5th and 6th Tactical Armored Battalions.

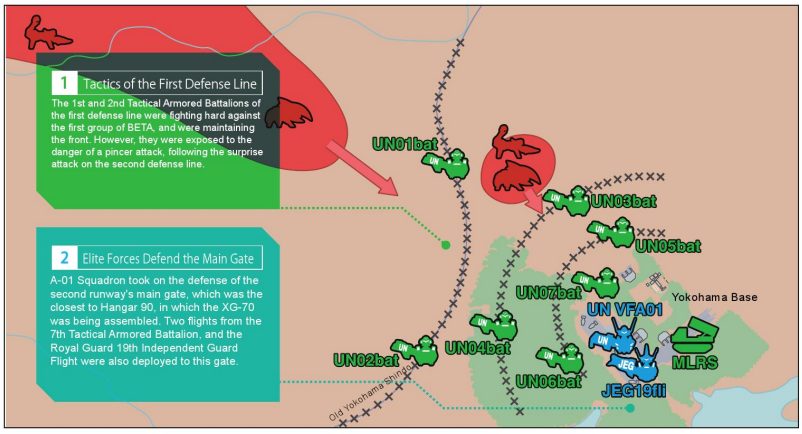
Furthermore, the 7th Tactical Armored Battalion took on the defense of the base's key facilities, and support forces were placed along the first runway, which was the furthest location from the BETA invasion route.

These positions were set with the assumption of the BETA's group assault tactic, and initially, they were functioning as expected, due to factors such as the high accuracy of the support bombardments.

However, the second defense line fell into chaos when a group of BETA ambushed them from underground by camouflaging their vibrations with those of the support bombardments. The 3rd and 4th battalions, which could not receive support bombardments due to the risk of friendly fire, had allowed the BETA to break through the defense line.



The enemy group that assaulted the second defense line was a large force that included Fort classes, and the units on the line, such as Victor Group, were forced to retreat due to the confusion that ensued following the ambush, as well as due to the BETA's numbers.



The Second BETA Ambush Holds Back the Front's Reconstruction

Having been informed of the BETA breaking through the second defense line with an ambush, headquarters attempted to strengthen support to respond to the inflow of BETA, by calling on bombardments from tank forces and by scrambling the 105 Air Support Corps, as well as by regrouping the remaining forces of the second defense line with the third defense line, which had come into enemy contact.

At the same time, they had the 1st and 2nd battalions fall back to the third defense line, and attempted to reconstruct it, while expanding the range of support bombardments up to the second defense line.

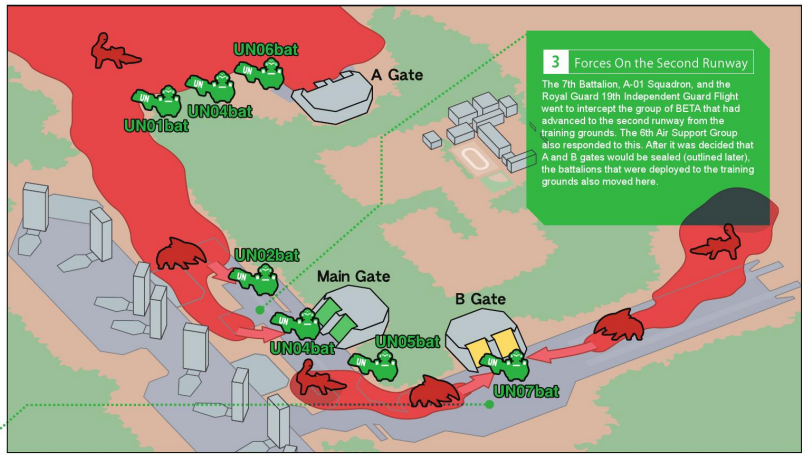
However, before these could be completed, the BETA conducted another surprise attack, this time from below the first runway. At the same time, the enemy forces from the northwest broke through the training grounds and began invading the second runway.

Due to this, the first runway fell into a state of confusion and the support bombardments to the training grounds were halted.

Air support to the first and second runways did not function effectively, and the UN Forces was in a position where it would be difficult to turn the tables.



As the front fell back, the main battlefield was relocated closer to the base's facilities. The TSF forces such as A-01 Squadron were forced to enter combat, despite not being able to receive adequate support.



The Collapsed Front

The forces defending the training grounds and the first runway were backed into a corner after their support systems were toppled, and by the time the artillery support forces had incurred their significant losses, over half the craft in the operation had been lost.

In response, headquarters decided to seal A and B gates by injecting a hardening agent, abandon the surface facilities, and desperately defend the main gate of the second runway with their remaining forces.

However, B Gate failed to seal, after receiving a BETA attack during the process.

Headquarters' goal of buying time by gathering forces to the main gate had shattered.

With an unavoidable situation of BETA infiltrating the facilities, A-01 Squadron, which had incorporated the 19th Independent Guard Flight under its command, was ordered to change their position to the bottom of Hangar 90's lift.

Alternative 4's A-01 Squadron, the most elite force at Yokohama Base, was assigned the role of defending the Susano-O Mk. II and the Mk. IV, which would act as the backbone of Alternative 4.

Meanwhile, the 7th Tactical Armored Battalion was positioned in the central distribution depot, which connects to the main shaft via B gate, and the battle to intercept the BETA shifted to within the facility.

The group of BETA that remained on the surface gathered on the first runway, and 30.87% of these had made it through the IJN's support bombardment and reached B Gate.

Although the 7th Tactical Armored Battalion went to retaliate against this group of BETA, the corpses of the Destroyer and Fort classes, which were scattered around the enclosed space, acted as cover, and the 7th Battalion was unable to hold back the invasion of small strains.

Although the forces defending the second runway were sent as reinforcements, the situation did not improve, and the 7th Tactical Armored Battalion suffered catastrophic losses, with the BETA breaking through Gates A and B of the main shaft's lift.

The three mechanized infantry regiments that were stationed at the bulkheads of the main shaft were unable to oppose the group of BETA advancing towards the reactor, and were crushed one by one.

Furthermore, six Fort classes had appeared on the second runway, which was devoid of personnel, and the situation grew even more dire when nineteen Laser classes spawned from the bodies of these Fort classes and infiltrated the main shaft via the main gate.

At one point, headquarters was about to conduct a last resort effort of sealing off the main shaft's lower strata, but they would switch to conducting a different operation, based on 00 Unit's advice.



The fierce fighting of the TSF forces, which took on the defense in vain. They allowed the enemy to infiltrate the base facilities, due to being pushed back by the BETA's numbers.

Tactics at the Central Distribution Depot Reveal The Clear and Tactical Intent of the BETA

The reason why headquarters decided to seal the A and B gates was to buy time and to drive the BETA to the limits of their activity period, as well as to wait for reinforcements from other locations.

However, as they could not seal off the main gate due to considerations of future operations, they instead gathered battalions 1 to 6 and had them defend it.

Unfortunately, the placement of forces around the main gate backfired, and the BETA broke through B Gate.

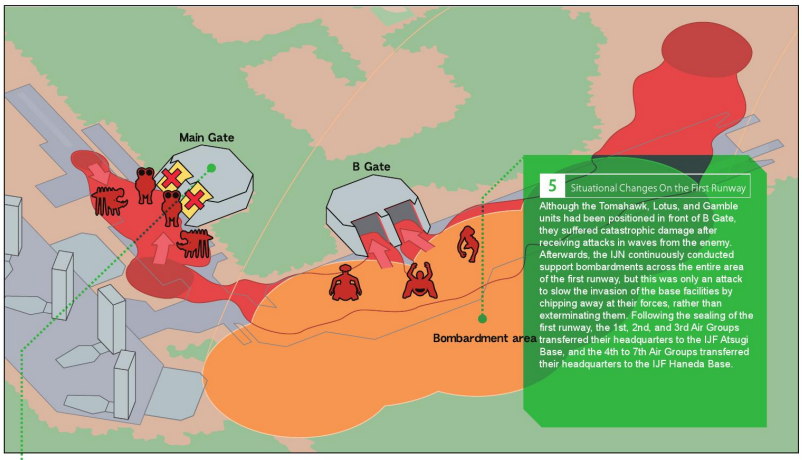
Having determined that it was impossible to stop the flow of BETA into the base's facilities, headquarters tried to intercept the BETA at the central depot, while chipping away at the enemy's momentum with support bombardments directed at the first runway.

Meanwhile, the BETA had focused their forces onto B Gate and surged into the central depot. Furthermore, Laser classes that were active appeared on the second runway, which was undermanned, and broke through the main gate.

Having been outsmarted by the BETA's tactics three times in a row, the UN Forces had essentially allowed the BETA to invade the main shaft.



The TSF forces in the central depot attempted to use missiles to remove the BETA corpses, which acted as cover. However, this scattered the corpses, resulting in further chaos.



5 Situational Changes On the First Runway

Although the Tomahawk, Lotus, and Gamble units had been positioned in front of B Gate, they suffered catastrophic damage after receiving attacks in waves from the enemy. Afterwards, the IJN continuously conducted support bombardments across the entire area of the first runway, but this was only an attack to slow the invasion of the base facilities by chipping away at their forces, rather than exterminating them. Following the sealing of the first runway, the 1st, 2nd, and 3rd Air Groups transferred their headquarters to the IJF Atsugi Base, and the 4th to 7th Air Groups transferred their headquarters to the IJF Haneda Base.

6 The Third Ambush On the Main Gate

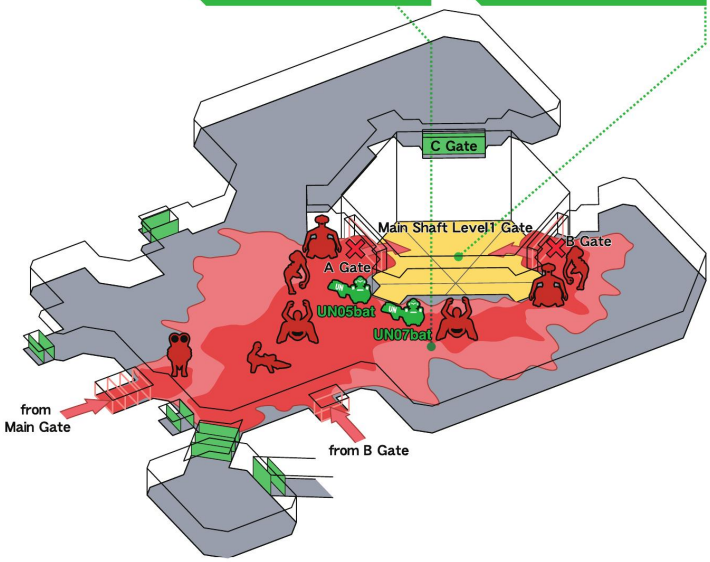
Immediately after enemies infiltrated the main shaft, Fort classes appeared on the second runway. As the defending forces were heading towards the central depot, they could not respond to this surprise attack. The Laser classes that emerged from the Fort classes then destroyed the bulkhead of the main gate and infiltrated the main shaft.

7 Movements of the TSF Forces

The 7th Tactical Armored Battalion was crushed just as the BETA infiltrated the main shaft. Surviving craft regrouped with the 5th Tactical Armored Battalion, which came afterwards, but as TSFs were not suited to combat within a shaft, they instead went to intercept enemies that followed the first group. However, by the time the BETA reached the third bulkhead of the main shaft, the 5th Battalion had also been annihilated.

8 Intercepting BETA Within the Main Shaft

Three mechanized infantry regiments, the 101st, 116th, and 108th, had been deployed to the interior of the main shaft. These took on the defenses of the first, second, and third bulkheads respectively. However, these mechanized infantry forces were crushed one after another, as Laser classes that infiltrated the shaft from the second runway joined the small strains. All three bulkheads were breached.



Stopping The Reactor

In the combat up to this point, the tactical armored forces had been almost entirely wiped out, and only one company of the mechanized infantry forces remained.

In this situation, headquarters planned an operation to halt the reactor and prevent the BETA from resupplying the energy needed for their activation.

This plan involved luring the BETA from the main shaft to Hangar 90 by activating the Susano-O Mk. II's Moorcock-Lechte ('ML' hereafter) Drive, and while this was happening, the work party and support craft would head towards the control room and reactor block on floor B33 to stop the reactor.

According to this plan, A-01 Squadron and the 19th Independent Guard Flight would be re-organized into α1 provisional squadron, which would intercept the group of BETA in Hangar 90, and α2 element, which would suppress the reactor block. These would work alongside the work party α3.

α2 broke through the central depot, where there was a dense gathering of BETA, and infiltrated the main shaft from lift gate C. Meanwhile, α3 split up at B19 to head to B33, taking separate routes down a maintenance and inspection ladder and through a passageway.

The ML Drive was activated when α 3-1 passed floor B25 and α3-2 had passed near B23. As expected, the BETA group started to move towards the 27th stratum lift gate, which was connected to Hangar 90.

After α2 had eliminated eight Laser classes that had latched onto the Hangar 90 bulkhead, they descended the main shaft and broke through the 4th and 5th bulkheads, though this allowed approximately 200 BETA to pass through. α2 then reached the lowest stratum block.

Although slightly late, α3 managed to reach the control room. However, the cable that connected to the reactor had been disconnected, preventing progress on the work to stop it, since they were forced to wait for α2 to reconnect the cable.

However, this loss of time tore a hole through the operation.

α3, which was moments away from halting the reactor, was wiped out after taking an attack from several Warrior classes that had infiltrated the research facilities after evading α2.

Furthermore, the relaying device for the data link was destroyed, isolating α2, and it became impossible to continue work on halting the reactor, as the control room had been suppressed.

Meanwhile at Hangar 90, combat broke out between α1 and the group of BETA that burst through the bulkhead, just as α3 was wiped out.

α1 was fighting an uphill battle against the numbers of the enemy, and they were unable to eliminate those that were latching onto the Susano-O.

In this unpredictable situation, headquarters made the decision to destroy the reactor.

Lieutenant Hayase received this order via communications that had temporarily recovered, and attempted to destroy the reactor with an S-11 while sealing the group of BETA in the lowest stratum.

While this was happening, the IJF tactical armored forces deployed along the Tama River entered combat with follow-up groups of BETA and were halting enemy reinforcements coming from Old Machida.

Factors That Derailed the Operation

The operation to stop the reactor had almost entirely progressed according to plan until α2 reached the reactor.

Most of the 200 or so small strains and Grappler classes that had infiltrated the lowest stratum block when α2 had passed the 4th and 5th strata, were eliminated by said element.

However, as they were hurrying to repair the cable, they were slow to discover that small strains had infiltrated the research facilities. On top of this, the communications between α2, α3, and headquarters was defective after a malfunction in the data link, and α3 would ultimately be hit by a BETA attack while defenseless.

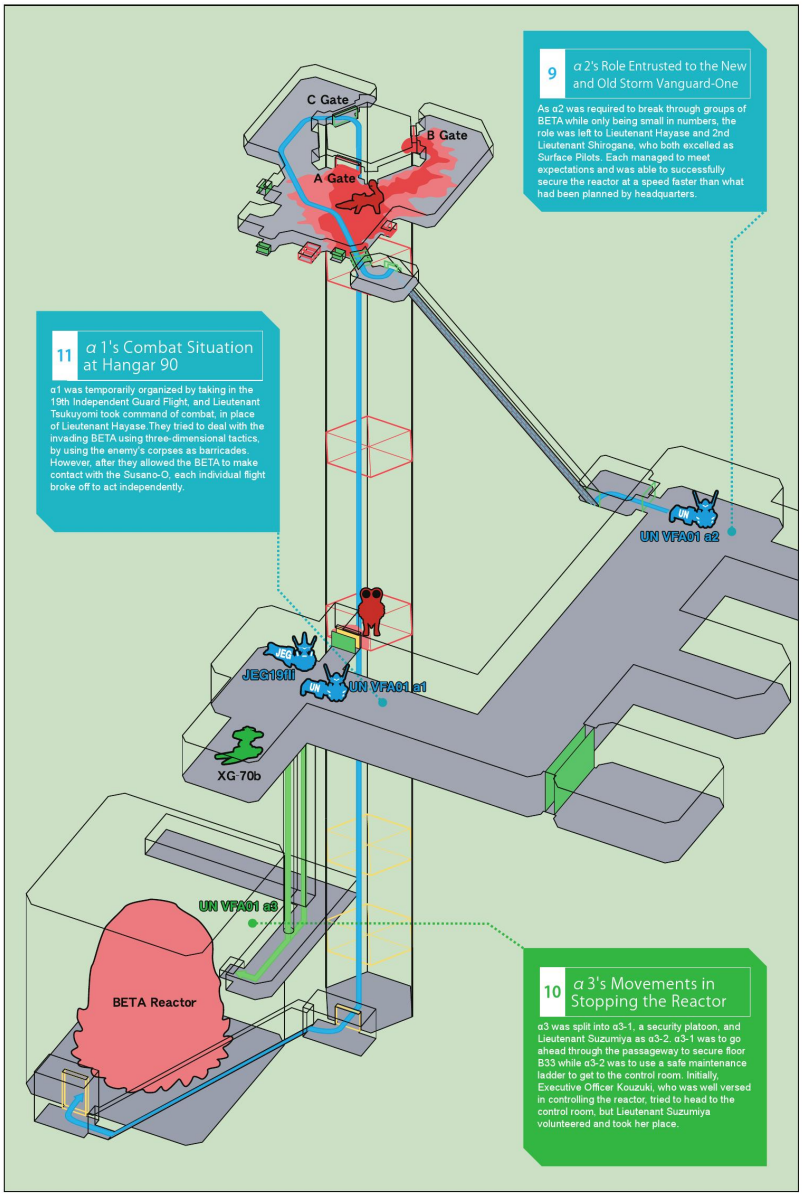
Because of this, Lieutenant Suzumiya Haruka, who was conducting work to halt the reactor in place of Executive Officer Kouzuki, was killed in action.

Meanwhile in Hangar 90, A09c-02 had been seriously damaged and 2nd Lieutenant Suzumiya Akane was wounded, placing α1 at a disadvantage.

These deteriorating conditions had led to the last resort of destroying the reactor.



Even though α2 eliminated the Laser classes that had infiltrated the main shaft, an overwhelming number of BETA made it into Hangar 90 and cornered α1.



The End of the Defense

In order to put Lieutenant Hayase's plan into action, the Susano-O Mk. II's ML Drive, which had been luring the BETA, needed to be stopped.

However, since communications had been cut from the fifth stratum to above, A09b-01 joined α1 to act as a messenger.

With B Flight, which had incorporated A09b-01, defending the Mk. IV, 2nd Lieutenant Kazama Touko would conduct work to stop the ML Drive while receiving support from A and C Flights.

The work that was being conducted while dealing with the BETA was difficult, but when the Mk. IV's gantry collapsed during combat, it caused the energy cable to disconnect, and the Mk. II's ML Drive stopped.

While this happened, A09c-01, who was trying to manually stop the drive, was caught in the collapse, and 2nd Lieutenant Kazama was injured.

Furthermore, A09c-00 had gone to rescue her, but was significantly damaged in an attack by the surviving enemies, resulting in Lieutenant Munakata Misae also being wounded.

Meanwhile, because the ML Drive was stopped, the group of BETA that had been pouring into Hangar 90 changed course towards the reactor.

After regrouping with A09b-01 and having the BETA group's movements confirmed by them, Lieutenant Hayase attempted to detonate an S-11 placed on the reactor, by using a wired detonator.

However, it became apparent that the BETA had neutralized the S-11 by destroying its detonation timer.

Intuitively recognizing that this was an intentional action by the BETA, Lieutenant Hayase decided to return alone to directly detonate the S-11. She then stopped the reactor with detonations from two S-11s.

Following this, the group of BETA began to retreat, and any BETA that had escaped the IJF's pursuit escaped into the Sea of Japan and headed towards the continent.

In the end, all that the Yokohama Base had avoided was the absolute worst-case scenario of being suppressed for a second time by the BETA.

The IJF's Pursuit of the Surviving BETA

The group of BETA that infiltrated the lowest stratum block was wiped out by the S-11's blast, but there were several dozens of thousands of BETA that remained inside the base, and in its surroundings.

With the halting of the reactor, these BETA had begun retreating, having lost their goal of resupplying their active energy.

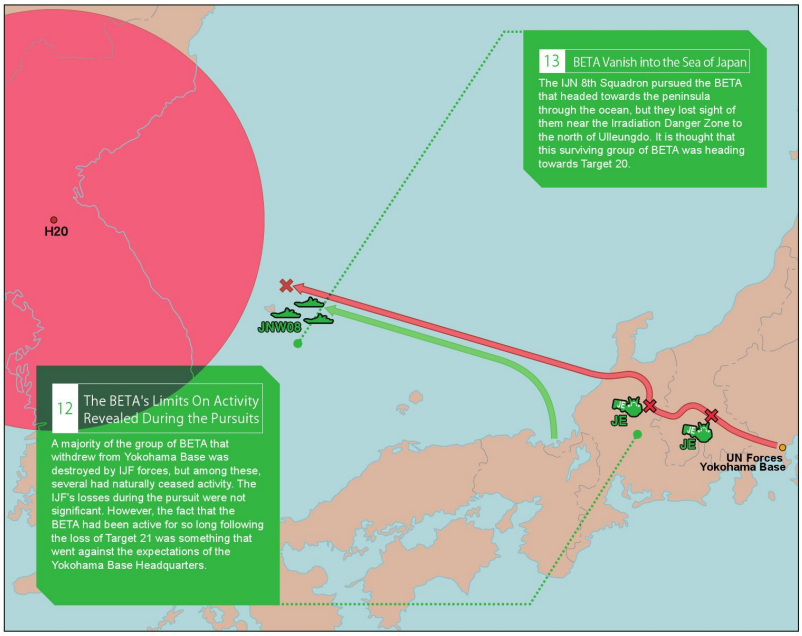
In response to this, the IJF reinforcements that were heading towards the Imperial Capital, and the forces guarding the temporary defense line started their pursuit from Kobuchisawa in the Yamanashi Prefecture and Takayama in the Gifu Prefecture respectively. They managed to eliminate 80% of the BETA.

The remaining enemies that slipped through to the Sea of Japan were pursued by the IJN 8th Squadron from the Maizuru Base, but on the following day, the 30th, at 19:33, they lost sight of the BETA.

This sweep-up operation, which destroyed several dozens of thousands of BETA, was a record-breaking and significant victory to the IJF, second only to Operation 21st. However, when considering the incident as a whole, the losses of the IJF were by no means small.



It can be considered that the reason for the IJF going as far as deploying the 8th Squadron and Wadatsumis to pursue the remaining groups of BETA was to take advantage of the situation and reduce the numbers of BETA.



The Scars and the New Reality Left in The Wake of the Defense

As of 21:00 on the 30th, the Yokohama Base had suffered an enormous loss of approximately 4,700 dead or missing, and 2,600 wounded. These numbers account for half of the total number of personnel at the base.

The tactical armored forces stationed at the base suffered catastrophic losses, with only ten craft remaining in an operable state.

Four mechanized infantry companies and three security infantry companies were annihilated, and including the support forces, the base had practically lost all of its strength.

A-01 Squadron also had two members killed in action, and three wounded, resulting in them losing a significant portion of their combat capability.

In regards to the base's functions, everything excluding the second runway and Hangar 90, which both received comparatively less damage, had been destroyed by the BETA, and it would be extremely difficult to quickly restore them.

The IJF, which acted to block the successive forces of BETA during the final stages of the defense, had lost TSFs amounting to two regiments.

However, what had shocked the headquarters more than these losses was the fact that the BETA had utilized tactics based on a clear goal.

In short, this was proof that the BETA were taking countermeasures in response to mankind's strategies and tactics, and this completely overturned all existing BETA research.

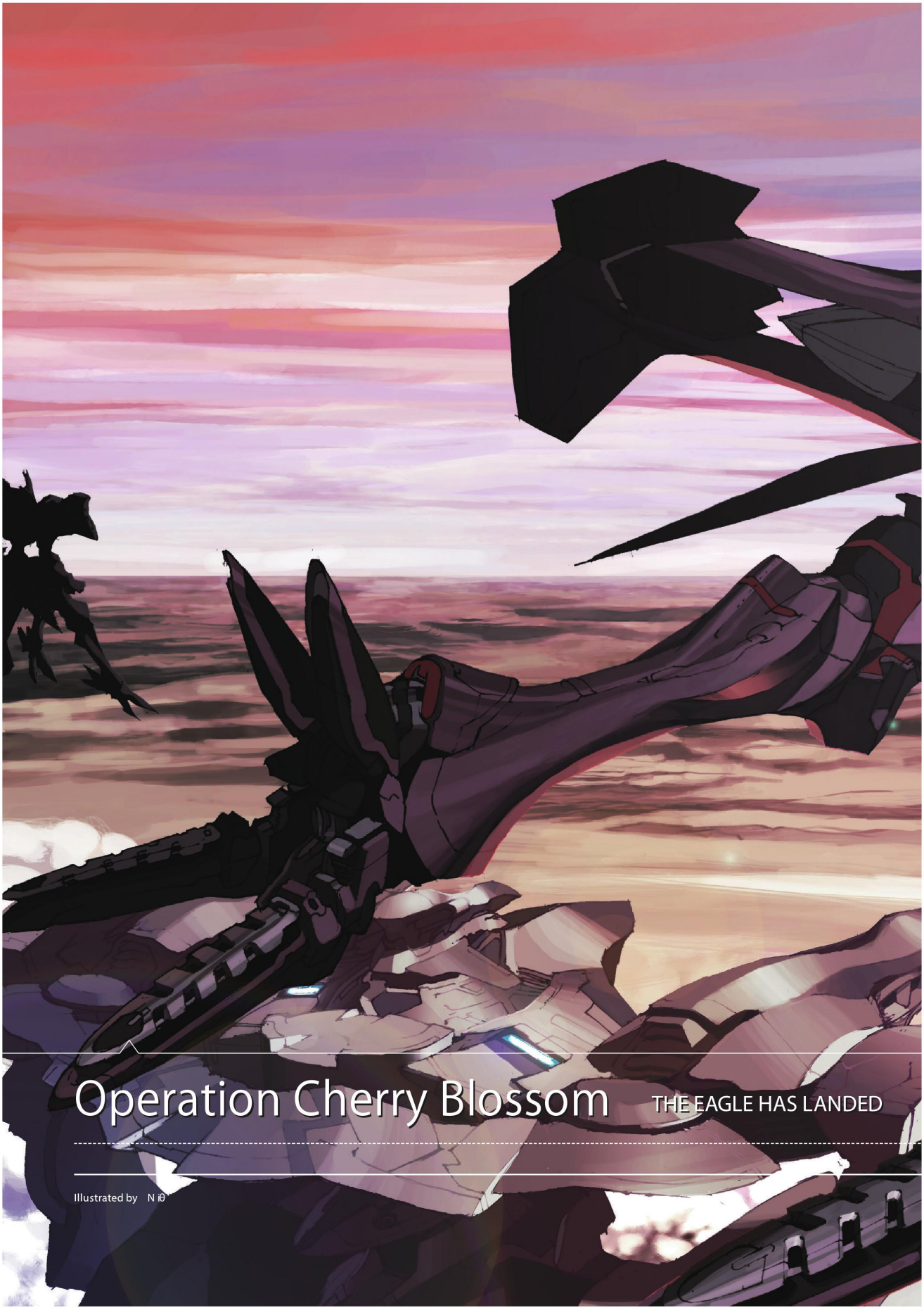
Due to the facts that had become apparent from this incident, the Alternative 4 Headquarters was backed into a situation where they had no choice but to conduct the operation that could be called their 'final gamble'.

■ The Losses of Yokohama Base

Personnel	Dead/Missing	Approximately 4700
	Wounded	2600
Forces	Air Support Forces	11Craft
	Mechanized Infantry Forces	4 Companies with catastrophic losses
	Reserve Infantry Forces	3 Companies completely wiped out
	Tactical Armored Forces	Catastrophic losses
	Support Forces	Wiped Out
Base Facility Damage	Amount of Base Operational	37%
	Training Grounds	No outlook for being restored
	First Runway	Unusable (Two electromagnetic catapults significantly damaged)
	Second Runway	Usable
	Shuttle Launch Site	Usable
	Deep Underground Facilities	60% suffering power outages
	Central Distribution Depot	Restoration estimated to take over half a year
	Research Facilities etc	Some external walls collapsed, critical infrastructure cut off
	Carrying Lift	Collapsed


The interior of the base immediately after the defense was in a horrible state, with wounded strewn all over the place.


As the underground nuclear reactor was unharmed, restorations were conducted quickly, but it could be said that the circumstances for the restoration were hopeless.



Operation Cherry Blossom

THE EAGLE HAS LANDED

Illustrated by N θ



Based on informational analyses by 00 Unit during Operation 21st and the Defense of Yokohama Base, the Alternative 4 Headquarters recognized the new reality, and the desperation of humanity's situation. The window of time to allow for humanity's survival was not several years or even months, rather, only a mere few days—
Alternative 4, backed by the UN Security Council, decided to set aside all plans for other operations and use all of humanity's deployable forces to capture the Original Hive. All front lines on the outer edges of Eurasia would be pushed inwards as diversions, and the Susano-O Mk. IV would be dropped from orbit onto the Original Hive, along with its escort forces. The time would finally come for this operation—the largest in the Great BETA War and in human history, which would involve slipping past millions of expected BETA to suppress Target Alpha, located in the deepest part of the Original Hive. Even though the circumstances were far from perfect, this operation would be set in motion with the aid of all those who continued to put in their utmost effort, even despite the situation.

January 1st, 2002.
A-01, the force to capture the Original Hive, descend to the grounds of the decisive battle, with help from countless nameless volunteers, and with humanity's fate in the balance.

January 01, 2002

Operation Cherry Blossom

Humanity's Final Resistance - Capturing The Original Hive

Alternative 4's headquarters gained several pieces of new information from the readings conducted during Operation 21st and from the results of the Defense of Yokohama Base.

The fact was that all hives across the globe were only subordinates of the Original Hive, which was what established the tactics and responses of each other hive.

Furthermore, it had become apparent that the reactor of a hive has functions equivalent to communications systems and main computers, and as a result, much of mankind's tactical and strategic information had been leaked to the BETA via the Yokohama Hive's reactor.

In short, mankind had nineteen days to capture the Original Hive, since this was the period of time it would take for the Original Hive to develop and globally transmit countermeasures against the Alternative Program.

The Alternative 4 Headquarters requested the UN Forces Headquarters to immediately conduct Operation Cherry Blossom—a global-scale military operation that held the primary objective of destroying the Original Hive's superlarge reactor (Target Alpha), commonly referred to as the 'core'.

Capturing the Original Hive itself was something that had been planned beforehand, and several countries across the globe had been making preparations for the implementation of the operation.

However, there was no way for these preparations to follow the unexpected acceleration of the schedule, and the circumstances appeared such that even thinking of the operation's success rate was foolish.

Regardless, as there was the possibility of humanity's anti-BETA weapons such as the XG-70 and the G-Bomb being neutralized, humanity had no choice but to force the operation to be conducted without being completely prepared, and with the awareness of humanity's absolute disadvantage.



The BETA raid on Yokohama Base, which was also Alternative 4's base, had made the headquarters realize a harsh reality.



Rapid repairs and adjustments were given to the Susano-O Mk. IV, which had been damaged in the attack on Yokohama Base, and it was to be the main force of the operation.



As the Original Hive was positioned inland on the Eurasian continent, expectations that the operation would face difficulties had been set even before it was launched.

The Perspectives of The US and Alternative 4's Headquarters

The US, faced with the danger of their G-Bomb being rendered useless, had initially been opposed to conducting Operation Cherry Blossom.

They argued that they should instead immediately conduct the fundamental strategy of Alternative 5, by attacking all hives across the globe, using every single G-Bomb in possession.

In response to this, Professor Kouzuki Yuuko, chief executive of Alternative 4, notified them that she would allow the immediate shift to Operation Trident, an all-out attack of G-Bombs, should Operation Cherry Blossom fail.

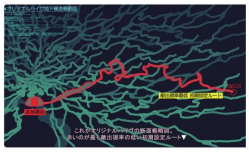
Furthermore, in order to enlist the help of the US orbital forces, which were absolutely vital in allowing the decisive units of Operation Cherry Blossom to reach the Original Hive, she gave a proposal to the effect that the capturing of the supposed G-element refinery plant (atelier) in the Original Hive would be under US Military jurisdiction.

In reality, Alternative 4's headquarters had schemed to cut off the UN Forces and US Military escorts by using 00 Unit to create a large-scale information deception, in order to raise the chances of the elite and decisive unit of only a few members to reach the reactor. The proposal to capture the atelier was nothing more than bait.

Furthermore, in the case Operation Cherry Blossom itself failed, Alternative 4 would have expended its last effort in saving humanity, and there would be nothing more left to lose from shifting to Alternative 5.

Due to these proposals, the US no longer had a reason to refuse cooperation. Should Operation Cherry Blossom succeed, the atelier proposal would grant them the atelier's purification mechanism, or at the very least, the G-elements that had already been produced by it. On the other hand, if the operation failed, Alternative 5 would be revived.

And so, Alternative 4's headquarters gained the support of the US and pro-Alternative 5 groups, and won the UN Security Council Resolution 3666—the order to immediately implement the mission to capture the Original Hive.



The invasion route to the deepest part of the hive, where the primary objective Target Alpha was located, was one with a lower chance of enemy encounters, based on 00 Unit's reading data. Furthermore, preparations were made to make detailed changes to the route, in response to any BETA reinforcements.

■UN Forces

This operation was led by the UN, and the forces were supplied by the militaries that faced hives on the outer edges of the Eurasian continent.

However, the main force for capturing the hive was A-01, which was directly under Alternative 4's control.

Meanwhile, the UN Forces mobilized the entirety of its orbital forces from its Space Force Command, and had deployed its Orbital Drop Corps and low orbit fleet, in order to support A-01, the key of the operation.

The stance of the UN, which disregarded any possible consequence, can be said to have shown the how dire the situation was.

UN Forces Deployment

Special Task Force A-01 | UN VFA-01

1st Element
- 2nd Lt Sakaki Chizuru F-15J Kagerou → Type 00F Takemikazuchi / A09a-00 (Valkyrie 1)
- 2nd Lt Ayamine Kei F-15J Kagerou → Type 00A Takemikazuchi / A09a-01
- 2nd Lt Tamase Miki F-4J Gekishin → Type 00A Takemikazuchi / A09a-02

2nd Element
- 2nd Lt Mitsurugi Meiya F-15J Kagerou → Type 00R Takemikazuchi / A09b-00 (Valkyrie 2)
- 2nd Lt Yorol Mikoto F-4J Gekishin → Type 00A Takemikazuchi / A09b-01

3rd Element
- 2nd Lt Shirogane Takeru XG-70d Susano-O Mk. IV (Gunner and Pilot) / A-04
- 2nd Lt Kagami Sumika (00 Unit) / XG-70d Susano-O Mk. IV (Engineer) / A-04
- Provisional 2nd Lt Yashiro Kasumi XG-70d Susano-O Mk. IV (Navigator) / A-04

UN Space Force Command Low Orbit Fleet | UNSF

UN Orbital Drop Corps | UNOD

※1st Orbital Drop Operations Unit, on the scale of 2 divisions

UN Orbital Drop Corps | UNOD

※3rd Orbital Drop Operations Unit, on the scale of 2 squadrons

UN Space Force Command 3rd Fleet | UNSF 03

Flagship Neustrashimy
- 1st Squadron ※With bombing equipment
- 2nd Squadron ※With bombing equipment
- Ichimonji Takahasu HSST Yuunagi
- 3rd Squadron ※Transport for Divers
- 4th Squadron ※Transport for Divers
- 5th Squadron ※Transport for A-01
- HSST Sawarabi
- HSST Eilat
- HSST Shiloh
- HSST La Fayette

■US Military

The US Military had two roles during the operation: orbital bombardment of the hives on the outer edges of BETA controlled territory with their space fleet, and infiltrating the Original Hive with their strategic orbital force.

The forces deployed for the latter role were equivalent to 80% of the orbital tactical armored forces owned by the US Military, and it can be said to prove how eager the US was to secure the G-elements.

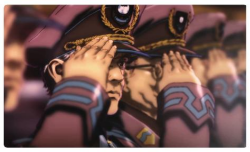
At the same time, it can be said that by retaining 20% of their forces, the US appeared to be ready to establish superiority over the lower orbits, in the event that the UN fleet suffered catastrophic losses.

US Military Deployment

US Strategic Orbital Force | USOD

※ 2nd Drop Operations Unit, equivalent to 2 battalions

US Space Fleet | USSF



Almost all of the UN Forces personnel that survived the earlier raid on Yokohama Base attended the launch of A-01 from the base. They saluted to wish them well.



Executive Officer Kouzuki watched over the launching of the shuttle by herself, from a distance, as she held the photograph of the late Jinguuji Marimo to her heart. What could have been going through her mind at the time...?

The Massive Diversionary Operation Across All of Eurasia

Operation Cherry Blossom sought to completely destroy the superlarge reactor, Target Alpha, which was the core of the Original Hive (Kashgar Hive, IJF designation 'Target 1').

The plans for the operation as a whole were split into three parts. Phase 1 would involve simultaneous diversions conducted against all hives on the outer edges of the Eurasian continent. Phase 2 would send in orbital divers to suppress the point of entry at the Original Hive, while the enemy forces were dispersed. Finally, in Phase 3, forces would infiltrate the hive from the secured invasion entry point, then suppress and destroy the main target.

The XG-70d Susano-O Mk. IV, which was still in development, was deployed to be part of the infiltration unit of Phase 3, which was the key of the operation.

00 Unit, who was in charge of controlling the Susano-O Mk. IV, held the key to the operation's success. She had also been deeply involved in the planning of the operation due to her analysis of BETA information, and had altered the Alternative 4 Headquarters' plan for the operation.

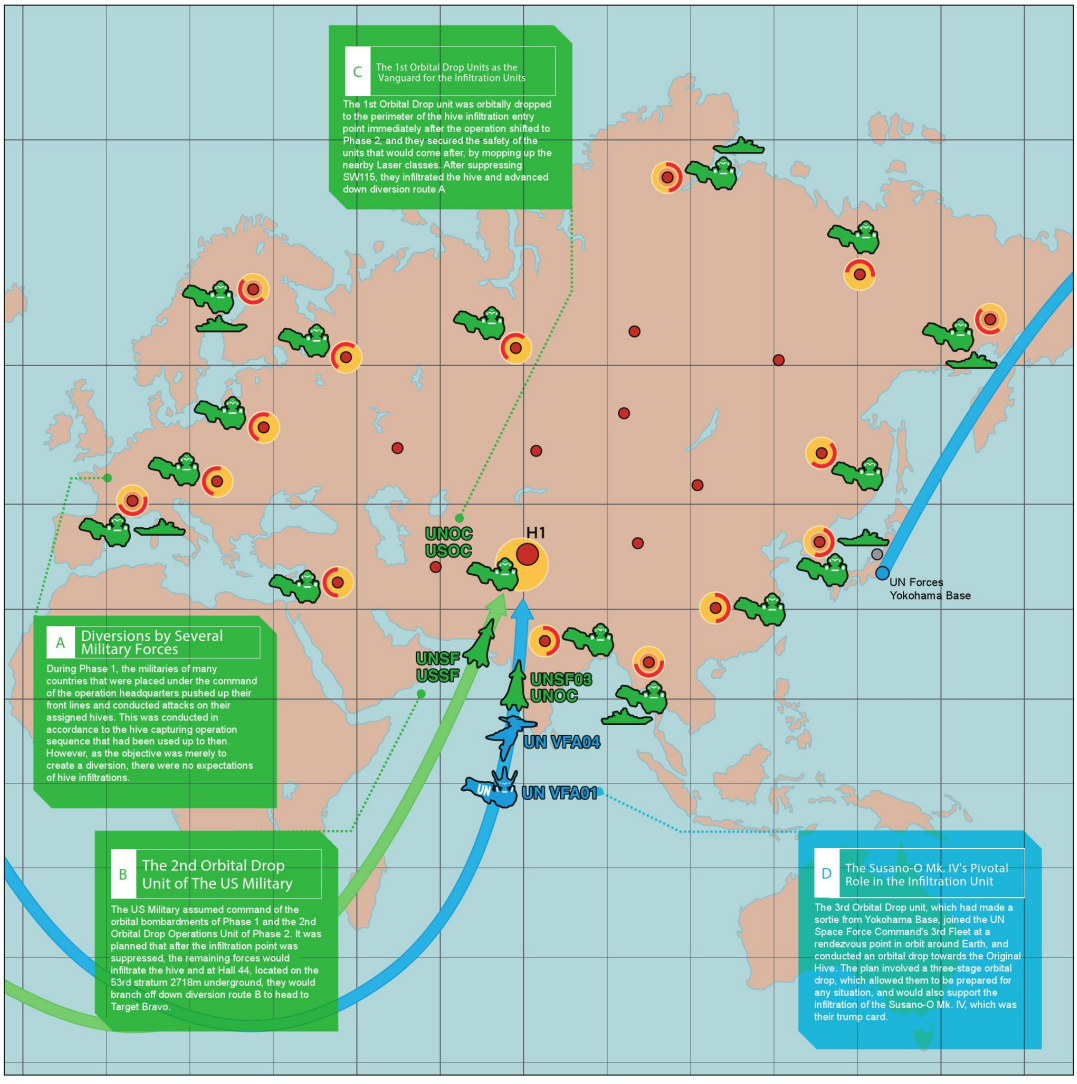
They were going to try to lead the infiltration units of the UN and US forces, which were initially planned to infiltrate the deepest part of the hive with A-01, to the surface of the hive by having 00 Unit provide false information.

There were several reasons behind this plan including how this operation prioritized a swift infiltration, and so the accompanying forces would be a hindrance, as well as how Alternative 4's headquarters wanted to keep losses to a minimum.

And so, the result of Operation Cherry Blossom would be left to a decisive battle unit of a mere eight personnel.

Developments in The Operation

December 30	Alternative 4 Headquarters plans Operation Cherry Blossom
December 30	The UN Security Council approves the immediate commencement of Operation Cherry Blossom
December 30	The UN Chiefs of Staff Council (UNCSC) announces the operation worldwide
December 30 21:00	A-01 is notified of the top secret plan involving them
December 31 19:44	A-01 completes initial simulator exercises
2002 January 1	The operation commences. Proceeds to Phase 1
January 1 7:00	The 3rd Drop Operations Unit sorties. This force includes Yokohama Base's A-01 The operation shifts to Phase 2 In consideration of the disadvantageous combat situation, the operation's headquarters decides to shift to Phase 3 ahead of schedule The operation shifts to Phase 3. A-01 successfully infiltrates the Original Hive A-01 reaches 400m in front of the Main Hall. Shifts to carrying out the alternative plan A-04 infiltrates the drift by breaking through the Main Hall. BETA reinforcements appear in the Main Hall A-04 infiltrates Target Alpha's block. The target is then destroyed and the operation's objective is successfully completed A-04's armored escape shuttle returns to Yokohama Base (2 survivors)



Operation Cherry Blossom

The Positions and Initial Movements of The Operation

The Alternative 4 Headquarters, which had proposed Operation Cherry Blossom and received the announcement from the UN, had informed the members of A-01 during the 21:00 briefing that same day of the overview of the operation, and their own unique, top-secret plan, before organizing a decisive battle unit that would aim to destroy the primary objective Target Alpha.

However, there were difficulties in procuring the craft that were to be used by A-01 in the operation to escort the Susano-O Mk. IV, and Yokohama Base was only able to secure F-15J Kagerous and F-4J Gekishins as operable craft. This was due to the range of craft being limited, if they were to limit their selection to craft loaded with XM3.

However, four Takemikazuchis were lent by the Royal Guard 19th Independent Guard Flight, and they were made to be A-01's craft for the operation, along with the Shogun's exclusive-use Takemikazuchi, which had been brought into the base.

The situation was so constrained that if these craft had not been provided, they would have been forced to organize the Target Alpha attack unit out of makeshift TSFs.

On the following day, the 31st, many preparations were underway for the commencement of the operation and A-01's deployment such as loading the craft planned for use into the reentry destroyers at Yokohama Base, as well as simulator exercises.

In the first simulator exercises (Simulator Course: EX), which ended on the same day at 19:44, A-01 could make it past the main hall with a success rate of 87%.

However, the structure of Target Alpha's block could not be analyzed, even with 00 Unit's readings, and so the final stages of the operation would be left to the judgment of A-01 in the field. Phase 1 of the operation commenced on New Year's Day, the 1st of January, 2002.

The front lines of the Eurasian continent were pushed up, and the hives on the outer edges were attacked simultaneously.

These attacks were conducted using preexisting anti-hive strategies, as well as the attack patterns used during Operation 21st. These strategies involved orbital bombardments from low orbit fleets (US Space Command), followed by indirect saturation bombardments from surface forces. Hives on coastal areas received bombardments from naval vessels. After these, tactical armored forces would rush in.

Phase 1 of the operation progressed smoothly, thanks to the hard fighting of the world's military forces, and once the third wave of BETA reinforcements had been identified across the several fronts, the operation was to shift to Phase 2.

Meanwhile, the attacking force, including A-01, sortied from Yokohama Base at 07:00, and prior to the operation's shift to Phase 2, they were waiting at the rendezvous point in Earth's orbit. They then joined the UN Orbital Drop Corps and formed the Drop Operations forces.



Although there were offers from the Royal Guard 19th Independent Guard Flight to accompany the attacking unit, it was passed, due to political considerations.

Phase 2 - More Difficult Than Expected

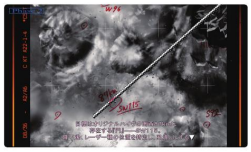
Upon being informed of the operation's shift to Phase 2, the UN Space Force Command's Low Orbit Fleet commenced repeated orbital bombardments on the perimeter of the Original Hive.

At the same time as the heavy metal clouds were forming from the bombardments, the two UN Orbital Drop Corps divisions commenced an assault dive on Gate SW115, located 87km south-west from the Original Hive.

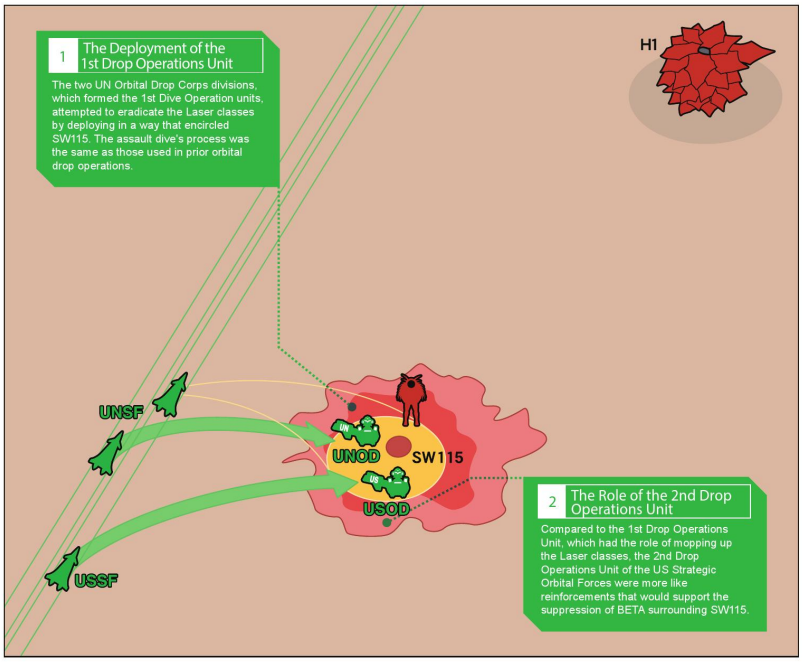
Furthermore, thirty minutes after the shift to Phase 2, two US Strategic Orbital Force battalions dropped to the surroundings of SW115 and attempted to suppress the area by joining with the UN Drop Corps.

Up to this point, the situation had gone as expected by the operation's headquarters, but soon afterwards, the 1st and 2nd Drop Operation Units would suffer higher than expected losses against the BETA's numbers.

Due to this, the suppression of the area around SW115 did not go as planned, and there were fears that this would influence the actions of the 3rd Drop Operations Units.



Gate SW115 could be identified even from satellite photographs, and was chosen as the entry point. It was chosen as the invasion route because it was identified to have a low rate of encountering enemies.



The Deals Behind The Operation

While Operation Cherry Blossom was being set in motion, political bargains were being made between the Alternative 4 Headquarters and the US. Ever since the discovery that BETA could adapt countermeasures against human tactics, advocates for a quick shift to Alternative 5 (the focused use of G-Bombs) started to regain momentum in the US, to protect G-element derived technology, such as the G-Bomb, from being rendered useless by the BETA. Alternative 4's headquarters were worried about these agitations from the US, and in order to hold them back from acting on their own accord, they tried to hasten the operation's schedules as much as possible. At the same time, they offered them a glimpse of an irresistible lure—the G-element refinery plant—in order to restrain the US. Through this, they gained the cooperation of the US for the operation.

Enemy Diversions and the Thoughts of The US

Although the US Military had taken on the role of suppressing the Secondary Objective, it is thought that they were aware of their role as decoys. The US was trying to forcefully take initiative in the international community. Should the operation succeed, they would end up ahead of other nations in G-element technology, and should the operation fail, Alternative 5 would be instated.



The activation of Operation Trident, in the case of Operation Cherry Blossom's failure, was something consented to by Alternative 4's headquarters.

The Intentions of Alternative 4's Headquarters

Initially, when the Alternative 4 Headquarters planned the operation, they had intended to use the US Military as a lure after infiltrating the hive. However, as there was the possibility that they would get in the way of A-01's swift advance, the plan was changed to one where they would be led to the surface with the accompanying UN Forces during the final stage of the operation.



The guiding of US and UN Forces units was planned to be conducted by 00 Unit through the data link.

The Unexpected Situation

Originally, the shift to Phase 3 was planned to be conducted after the 1st and 2nd Drop Operations Units had secured the combat zone surrounding SW115.

However, because of the higher than expected losses, the operation headquarters decided to speed up the operation into Phase 3, to have the 3rd Drop Operations Unit deployed before the advance forces were crushed.

Upon receiving that decision, the UN Space Force Command 3rd Fleet, which was in standby in Earth's orbit, abandoned all its initial plans regarding the orbital deployment of reentry shells.

Instead, their plan shifted to having the 1st and 2nd Squadrons move ahead of the fleet to conduct orbital bombardments of AL shells, while the 3rd, 4th, and 5th Squadrons would push forth until they broke through the ionosphere, while holding onto their reentry shells of the drop forces.

This new plan prioritized the 3rd Drop Operations Unit reaching the surface, and having the destroyers act as shields for the drop units, in case of an emergency.

And so Phase 3 of the operation commenced, but not without initial hitches. A majority of the AL rounds deployed by the 3rd Fleet were not intercepted by the BETA surrounding SW115, so the density of the heavy metal cloud was not sufficient to protect the 1st Squadron, which suffered losses of over 80% during its descent, and even the 2nd Squadron would suffer losses of over 50%. (The BETA had been intercepting AL rounds even through Phase 2, so it can be assumed that the strategic shift in not intercepting AL rounds happened in the short time period between Phases 2 and 3).

Furthermore, A-04 found itself in peril while in the process of reentry, since it was receiving Laser attacks from ten Heavy Laser classes. However, vessels such as the 2nd Squadron's flagship Yuunagi, as well as vessels from the 5th Squadron that had already detached their reentry shells all acted as a shield for A-04. As a result, the reentry destroyers were wiped out, but A-01 reached the surface almost unharmed.

Although A-01 narrowly succeeded in their dive, thanks to the sacrifices of the 3rd Fleet, the combat situation on the surface was disastrous.

The entire 3rd Drop Operations Unit, excluding A-01, had been annihilated before reaching the surface, due to BETA interception, and the advance units deployed around SW115 suffered catastrophic losses due to the 3rd Fleet's AL shells that were left unintercepted by the BETA.

According to the top secret plan of the Alternative 4 Headquarters, these forces were meant to be guided to the surface by 00 Unit's deception, after entering SW115, but they were destroyed before that stage of the plan was reached.

And due to the fact that that these forces, which were meant to enter the hive and at the very least function as diversions, had been annihilated, A-01 would be forced into more combat than initially expected.

Furthermore, as a Rutherford Field had been deployed on a scale larger than expected, in order to block the Laser attacks during reentry, significant wear was placed on 00 Unit as well.

The Struggle of the 3rd Fleet in Helping A-01 Reach the Surface

During reentry, the 3rd Fleet's formation involved the 1st and 2nd Squadrons going ahead down the orbital path, with the 3rd to 5th Squadrons following behind them with a 420 second delay.

As the 5th Squadron, which transported A-01, would have weaker anti-laser defense during reentry, it was placed behind A-04.

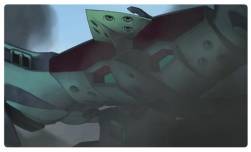
Furthermore, the 1st and 2nd Squadrons detached all of their AL shells 900 seconds before commencing reentry, and reduced speed to ensure there was a 120 second gap with the successive units, before attempting a reentry while in a dense formation.

Meanwhile, the 3rd to 5th Squadrons also attempted to preserve the ablative layer of the reentry shells by delaying their detachment as much as possible.

These were all measures taken to minimize the losses of the drop forces, and such actions reflected how deeply ingrained the importance of the forces to attack Target Alpha were to the 3rd Fleet.

In the end, their orbital drop tactics were taken advantage of by the BETA, and their reentry plan fell apart, as did the surface forces deployed in advance.

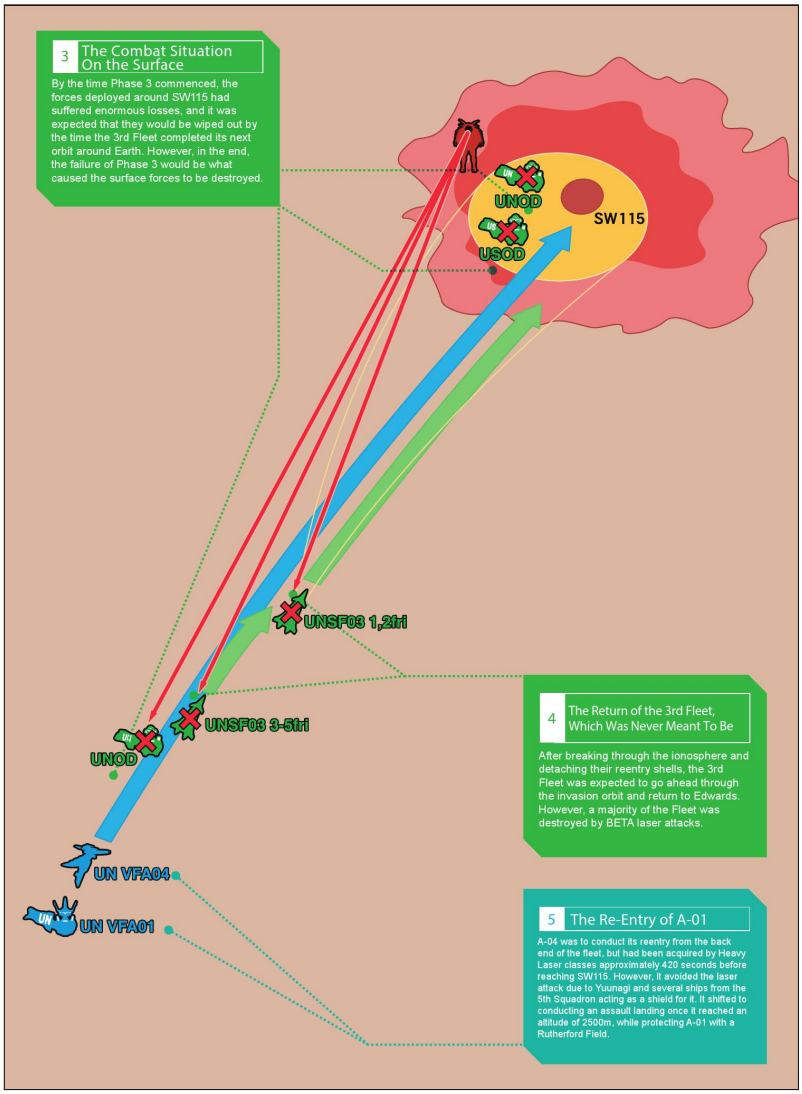
However, it can be said that the reason why even A-01 alone was able to dive safely under these conditions was due to the actions of the 3rd Fleet's vessels, which literally acted as shields to protect A-04 from laser attacks.



As the Rutherford Field acted as a shock absorber during reentry, A-04 was able to orbitally drop by itself.



The 2nd Squadron's Yuunagi, which escaped BETA interception, was destroyed in a laser attack while acting as a shield for A-04.



Operation Cherry Blossom

Tactics in the Deepest Part of the Hive

A-01, which had infiltrated SW115 alone, advanced down the invasion route while engaging in combat with more than twice the expected number of BETA.

They managed to reach a distance of 4500m to the Main Hall, which is adjacent to Target Alpha, by collapsing a hall to block the enemy's pursuit.

However, because of the combat up to that point, and the process of collapsing the hall, A-04 had used up all of its S-11s, and over half of its missiles (during combat in the hall alone, it used five S-11s and over a hundred missiles).

Furthermore, reentry and combat in the hive's interior had forced a significant strain onto 00 Unit, and her state was worsening.

Due to this, it was nearly impossible at this stage to continue the initial plan of luring the BETA into the Main Hall by operating the ML Drive at full power, before using A-04's missiles and Rutherford Field to sweep up the BETA and break through the Main Hall.

The alternate plan devised by 2nd Lieutenant Sakaki during this situation was to create a delayed diversion, which would take advantage of the depth of the Main Hall.

Under this plan, the 1st and 2nd Elements would rush ahead into the Main Hall, and lure the BETA group to the rear side. After the vanguard group of BETA were lured out to a distance of 600m, A-04 would activate the ML Drive to lure the enemy to turn back.

Once A-04 had lured the enemy to within 300m of it, it would fire a volley of 36mm rounds upon the enemy, while breaking through them. Meanwhile, the 1st Element would open up the drift's first septum. While this was happening, the 2nd Element would head down the drift to commence work on opening the second septum.

A-04 would infiltrate the drift, while receiving long-range support from the 1st Element, which would have completed the work to open the septum. A-04 would then turn around to suppress the group of BETA with missiles while the 1st Element closes off the first septum, before moving into the drift themselves. They would then destroy the brain of the first septum to seal off the drift.

A-01 would carry out this plan to attempt to break through the Main Hall.



A-01 advanced down the optimal route to Target Alpha, but even so, they faced harsh combat.



In regards to the change of plan, the abilities of A-01 to respond to different situations as honed by combat, were demonstrated to the fullest.

A-01 Breaking Through the Main Hall

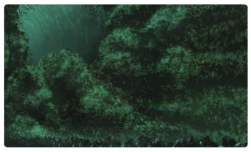
The alternate plan, which had been put into effect, was progressing smoothly up to the point where the 1st and 2nd Elements reached the drift's first septum, and A-04's ML Drive became activated.

However, this turned the BETA group of approximately 150,000 towards it, and away from the advance party. If this group came into contact with the Rutherford Field, 00 Unit would have been placed under excessive strain.

Furthermore, there were enemy reinforcements of over 100,000 BETA, which had broken through the hall behind A-04, and there was the risk of it suffering a pincer attack. Faced with this, the members of the unit were required to respond in a way that deviated from the plan.

And here, the members of A-01 fully displayed their abilities to act independently, which were worthy of them being chosen as part of the decisive battle forces.

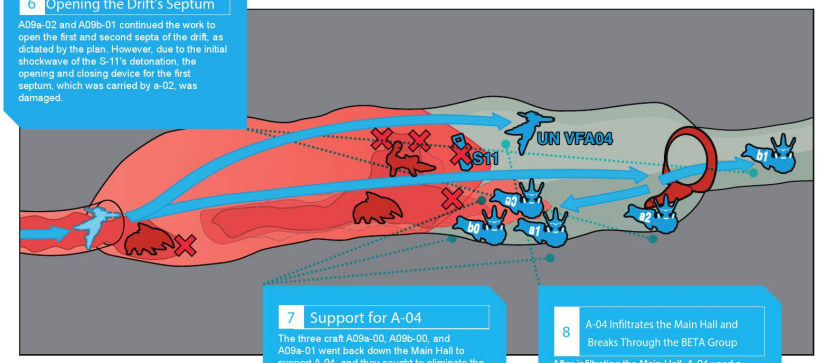
The following diagrams show how the operation continued.



The group of BETA in the Main Hall had covered the entire surface of the walls, and were resembling a landslide.

6 Opening the Drift's Septum

A09a-02 and A09b-01 continued the work to open the first and second septa of the drift, as dictated by the plan. However, due to the initial shockwave of the S-11's detonation, the opening and closing device for the first septum, which was carried by a-02, was damaged.



7 Support for A-04

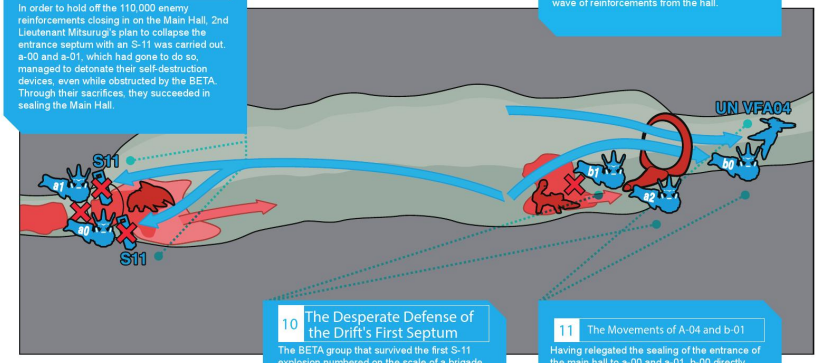
The three craft A09a-00, A09b-00, and A09a-01 went back down the Main Hall to support A-04, and they sought to eliminate the group of BETA inside the Main Hall by detonating the S-11s that were originally mounted on A09a-02 and A09b-01.

8 A-04 Infiltrates the Main Hall and Breaks Through the BETA Group

After infiltrating the Main Hall, A-04 used a cone-shaped Rutherford Field to focus the explosions of the S-11s behind it, which was detonated by the three craft coming to its aid. This destroyed approximately 90% of the BETA group, and approximately 30,000 of the first wave of reinforcements from the hall.

9 Sealing The Main Hall

In order to hold off the 110,000 enemy reinforcements closing in on the Main Hall, 2nd Lieutenant Mitsurugi's plan to collapse the entrance septum with an S-11 was carried out. a-00 and a-01, which had gone to do so, managed to detonate their self-destruction devices, even while obstructed by the BETA. Through their sacrifices, they succeeded in sealing the Main Hall.



10 The Desperate Defense of the Drift's First Septum

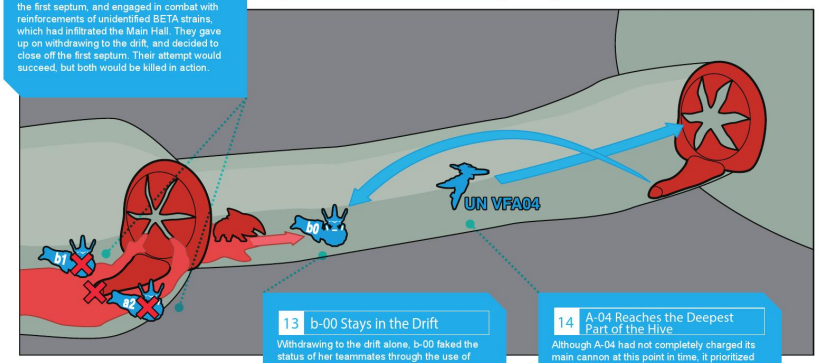
The BETA group that survived the first S-11 explosion numbered on the scale of a brigade. These, along with the 30,000 or so reinforcements that had infiltrated before the septum's collapse, were approaching the drift. a-02 and b-01 had remained in the Main Hall to continue work on sealing the first septum while holding off the group of BETA.

11 The Movements of A-04 and b-01

Having relegated the sealing of the entrance of the main hall to a-00 and a-01, b-00 directly supported A-04, which had infiltrated the drift. Furthermore, A-04 was on standby, halfway through the drift, and was charging its main cannon to destroy Target Alpha.

12 Closing Off the Main Hall

a-02 and b-01 continued to defend the front of the first septum, and engaged in combat with reinforcements of unidentified BETA strains, which had infiltrated the Main Hall. They gave up on withdrawing to the drift, and decided to close off the first septum. Their attempt would succeed, but both would be killed in action.



13 b-00 Stays in the Drift

Withdrawing to the drift alone, b-00 faked the status of her teammates through the use of information deception (in order to have 2nd Lieutenant Shirogane prioritize the operation), and instructed A-04 to pass through the second septum. b-00 then sought to halt the group of BETA that had poured into the drift just before the first septum had been closed off.

14 A-04 Reaches the Deepest Part of the Hive

Although A-04 had not completely charged its main cannon at this point in time, it prioritized the infiltration into Target Alpha's block, due to the changes in the combat situation. It passed through the second septum, which had been opened, and reached the deepest part of the Original Hive.

Combat with Target Alpha

A-04, which had infiltrated Target Alpha's block, suffered a direct attack from Target Alpha when it had advanced to a position approximately 5400m from the target (220m from the firing point).

Due to this, 00 Unit completely lost control of herself and of the craft, and the charged particle cannon's energy decreased to just below 13%.

While this happened, 2nd Lieutenant Shirogane successfully communicated with Target Alpha through the encroached 00 Unit, and learned of the type of beings that the BETA were. However, this did not lead to a breakthrough in the situation.

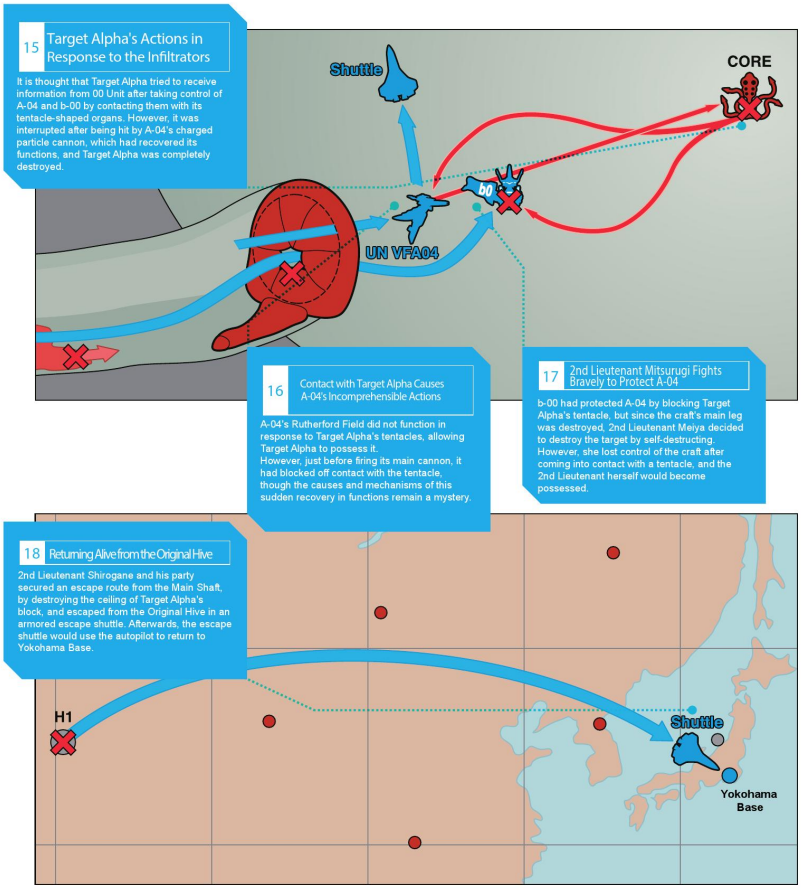
Furthermore, b-00, who had eliminated the group of BETA and entered Target Alpha's block, tried to destroy the target, but immediately after activating her self-destruction device, she lost control of her craft, and the situation appeared to be that she would self-destruct with A-04 caught in the blast.

Perhaps it was 2nd Lieutenant Shirogane's calls to 00 Unit that had an effect, but the ML Drive of A-04 went to full power, whereby the energy of its charged particle cannon replenished at an abnormal speed.

During this situation, 2nd Lieutenant Shirogane made the difficult decision to destroy Target Alpha alongside b-00, and manually fired the charged particle cannon.

Upon confirmation of the primary objective Target Alpha's destruction, he escaped the Original Hive in an armored escape shuttle.

A-04's armored escape shuttle safely returned to Yokohama Base, but having exceeded her active limit, 00 Unit ceased functioning before making it back. Operation Cherry Blossom had come to a conclusion, with its objective completed, though with significant sacrifices.



The Results of Operation Cherry Blossom's Success

Operation Cherry Blossom had ended in success, after completing the primary objective of destroying Target Alpha.

However, the UN and several countries had deployed significant numbers of forces to this operation, with most being lost.

Also, though the functions of the Original Hive had been halted, twenty-three hives still remained on Earth.

Even so, the significance of destroying the primary objective, Target Alpha, the backbone of all hives on Earth, was massive, and would lead to the successes of later counter-offensives, such as Operation Sledgehammer, which sought to capture Target 20.

Furthermore, the records of communications with Target Alpha, which had been gained during the operation, added the new possibilities of 'dialogue' to future anti-BETA strategies.

In fact, Executive Officer Kouzuki Yuuko, who led Alternative 4, stated that the success of Operation Cherry Blossom had bought humanity thirty years of time.

It is no overstatement to credit the decisive battle unit with saving humanity from the danger of destruction.



It can be said that the joy of those at Yokohama Base, greeting the escape shuttle of Shirogane and his party, truly demonstrated the significance of the operation.



The success of the operation was a valuable step for humanity's survival, though the sacrifices, including the loss of 00 Unit, were also significant.

The Task Left for Humanity

It is thought that with the loss of Target Alpha, it has become impossible for Earth's existing hives to propagate and share tactical information, or create new countermeasure tactics. However, the remaining twenty-three hives are still active, and the threat of their groups of BETA has not disappeared. Furthermore, there was a mountain of problems that had to be solved in regards to humanity itself, so although the danger had passed for now, humanity was not in a situation where optimism was possible.



As Kouzuki Yuuko stated, there were still many problems left for humanity to solve, before worrying about exterminating the BETA.

Combat Aimed at Reclaiming Previously Inhabited Areas

From the records of dialogue with Target Alpha during Operation Cherry Blossom, it was revealed that communication with the BETA was not impossible, but even so, exterminating the BETA up to Mars was seen as a top priority, rather than engaging in dialogue with them.

Due to this, hive capturing operations were conducted over several locations after Operation Cherry Blossom, and the battles to remove the BETA threat still on Earth and the Moon would continue.

Harmony Within Humanity

Even when faced with a common enemy, the BETA, mankind was not able to overcome conflict regarding ideologies and interests.

As Executive Officer Kouzuki feared, even if it was possible to converse with the BETA, it would be near impossible to establish peace with an alien species, if humanity's own internal conflicts still lingered.

It can be said that this was a problem that was far more difficult to deal with than the BETA.

Other Operations

Operation Palaiologos

Operation Palaiologos was the operation to capture the Minsk Hive, and was conducted on the 22nd of June, 1978, by the North Atlantic Treaty Organization (NATO) forces and the Warsaw Treaty Organization (WTO) forces.

The Sequence of Events Up to the Operation

In 1976, the Minsk Hive was constructed in the Soviet territory of Belorussia, in the middle of the Moscow Highway, which was the main connection between the Soviet Union and Europe. It was only a matter of time before the densely populated areas of Europe would be exposed to the direct threat of BETA.

In response to this danger, the headquarters of both NATO and WTO planned a counter-offensive, which sought to eliminate the Minsk Hive, in order to reestablish stability on the Eastern European front.
After approximately half a year's worth of preparation time, including the relocation of forces from Western Europe and those further east of the Ural Mountains, they commenced their attack.

The Developments of The Operation

On June 22nd, 1978, the NATO/WTO joint forces that were deployed to Warsaw, Poland, and the Soviet Armed Forces, which were defending Moscow, commenced a simultaneous attack.

From combat lessons learned up to that point, the headquarters of the NATO/WTO joint forces conducted a pincer attack from the east and west on the bulge around the Minsk Hive. The WTO forces, which excelled at surface combat, were the main force, while the NATO forces acted as support and diversions.
It was an operation that sought to secure the safety of Moscow, which was in the process of being encircled by the BETA, and also sought to capture the Minsk Hive. It is said that Alternative 3's results on research into BETA activity characteristics, including verification tests, were offered to assist in the planning of the diversions.

The main surface forces for this operation were armored tank forces of both NATO and WTO. On the other hand, the TSF forces, which were valued by every nation, were mainly used to eliminate Laser classes and as reserve forces to be deployed in dangerous situations.
Although the elimination of Laser classes by 1st-generation craft resulted in significant losses, there was no other method available at the time, and the speed of the advance was slow, with little progress being made.
Even so, two months after the operation started, the capturing forces had finally reached a position where the Minsk Hive's monument could be seen. The TSF had proven the purpose of its existence.
The combat lessons learned from this battle later acted to revise the heavy armor ideology, which was a characteristic of 1st-generation TSFs.

The NATO/WTO joint forces, which had set off from south of the Minsk Hive, had finally shifted to attacking the hive itself. Initially, they tried to destroy the hive with conventional bombardments, but the monument was extremely resilient, and conventional attacks would deal almost no damage.

The next attempt to destroy the hive included bombardments from aircraft and assault air drops from Soviet airborne troops, which were temporarily able to be deployed, following the elimination of the Laser classes from the hive's perimeter, due to the accompanying surface suppression. However, these efforts would all end in failure.

This situation gave rise to some members of the US NATO Forces in Europe becoming proponents of using tactical nuclear weapons to destroy the hive, since they prioritized the safety of the Eurozone. However, the European Union Forces and the Soviet Armed Forces opposed the use of nuclear of weapons, and decided to deploy tactical armored forces, which they had saved as reserves up to that point, in order to gain control of the hive's energy source, which was thought to exist directly under the monument.

The First Hive Infiltration in Human History

On the 1st of September, 1978, tactical armored regiments of F-4Rs and MiG-21s, as well as the Soviet Army 43rd Tactical Armored Division, consisting of combined arms, conducted the first infiltration of a hive's stab in history.

Even though they advanced towards the main vertical opening, the division was annihilated approximately 3.5 hours after entering. This was due to the scale of the stab, which exceeded all predictions, as well as due to being faced with constant streams of groups of BETA.

Furthermore, almost at the exact time this was happening, the BETA across all of the fronts in Eastern Europe became more active, and the forces encircling the Minsk Hive were suffering significant losses, and so were forced to retreat.

Faced with the BETA's major offensive, which almost seemed to be retribution for violating their sanctuary, there was no choice but for mankind to continue retreating, having lost a large amount of forces during Operation Palaiologos. By the end of 1978, the BETA group's vanguard reached the Baltic Sea coast.

The BETA split the Eurasian continent between east and west, and this marked the beginning of an ordeal of more than a decade long to withdraw from Europe.

The Countless Combat Lessons from Operation Palaiologos

Although Operation Palaiologos failed in achieving the goal of capturing a hive, it would allow for mankind to gain numerous insights into things such as the operational theories of TSFs in combat, coordination between TSFs and other arms during the suppression of Laser classes, and the patterns of enemy reinforcements from a hive.

In particular, the data on the stab, gained by the Soviet Army 43rd Tactical Armored Division, became the only data on a hive's interior gained up to that point in time, and it would immediately be incorporated into Surface Pilot training and education across the globe.

This data was called the "Volk Data" after the name of the tactical armored regiment that had broken into the stab. The slogan "Follow Volk's Lead" would be shared across all of humanity, overcoming the division between east and west.

The Defense of the Imperial Japanese Mainland

The Imperial Japanese Mainland Defense is the general name for a series of engagements starting from the BETA invasion of the Japanese mainland on the 7th of July, 1998, until Operation Lucifer in the August of the following year. This section will explain the combat in the first month in particular, from after the BETA landing, up to the Defense of Kyoto.

The Landing of the BETA Group

On the 7th of July, 1998, a group of BETA landed on Tsushima Island. As they were landing, a superlarge typhoon, caused by the BETA's large-scale environmental destruction of Eurasia, struck the Okinawa and Kyushu regions.

This invasion struck the opening in the naval forces, which were delayed in their deployment, and it was something completely unexpected for the Empire, which had only expected a BETA incursion of the mainland in 1999, given that the Cheorwon Hive had only recently been constructed.

Even so, the Imperial Mainland Defense Line, and the Imperial Mainland Defense Force on that line, bravely resisted.

The MDF, which was full of elite personnel, had intercepted the division-scale groups of BETA that landed on Nagasaki/Saga, which landed after the group at Tsushima. There, they achieved an overwhelming combat result of defeating these groups in mere hours.

However, two days later, BETA landed on the Sannin region and the central area of Kyushu. As these BETA had reached areas where Japanese citizens and refugees from the continent had not been evacuated, the IJF would allow the BETA to infiltrate the mainland, as they could not conduct effective interceptions without fears of causing harm to civilian populations.

The facts that the typhoon caused a lack of naval forces, and that it also made it impossible for evacuation vessels to berth would further worsen this situation.

In response to this crisis, the US proposed the use of nuclear weapons or their new weapon, the G-Bomb, on the groups of BETA that were continuing to land at Nagasaki, Kumamoto, and Yamaguchi, and those that had reached Hiroshima.

However, the Imperial Japanese government declined, due to the expected damage to civilians being extremely high, as well because of the ineffectiveness of wide area-suppression weapons during defenses, as demonstrated by previous failures like with the Sino-Soviet coalition forces.

Although the US had accepted the decision at that stage, the disagreement between these two nations would later lead to the annulment of the Japan-US Security Treaty.

Tactics of The Imperial Capital

On the 12th of July, the large typhoon was still raging, and while forces isolated in Kyushu continued a hopeless resistance, the vanguard of the group of BETA reached the First Imperial Capital Defense Line, which started from Himeji.

The IJF desperately sent in reinforcements to the defense line, even while being aware of the foolishness of deploying forces sequentially. However, from the fact that the evacuation of civilians and refugees had not been finished in time for this region either, the defense line collapsed in only half a day. On the following day, the 13th, the group of BETA reached Kobe.

While the Empire took care in the defense of Kyoto, the US Forces in Japan proposed an early withdrawal to further east of the Lake Biwa canal, due to the disadvantageous terrain and to rebuild the front.

Although the relocation of the capital functions to Tokyo had already begun, there was no way the Imperial government would accept Kyoto's abandonment, since it held a greater significance than just being a capital city, and so the Empire would once again refuse the US proposal.

The defense forces, primarily composed of the Imperial Capital Defense 1st Division and the Royal Guard 2nd Regiment, had implemented a combined counter-offensive, with support from naval and orbital bombardments, which had been held back until that point, due to the risk of friendly fire on civilians.

Although they were able to push back the BETA group at one point, despite this group having reached Osaka, the units in the Kyushu region were wiped out by the end of July, and the combat situation would once again worsen, with the growing intensity of the invasion in Kyushu.

On the 10th of August, the Imperial government, which had completed its evacuation to Tokyo, formally informed the US and UN forces in Japan of the abandonment of Kyoto and the formal relocation of the capital to Tokyo. The IJF then began to withdraw to further east of the Lake Biwa canal line.

Although both the Emperor and the Five Regent Houses had shown intentions of falling with Kyoto, they reluctantly agreed to withdraw from the city, after being convinced by many sections of the government and the Shogunate of their importance as symbols of empire and that without them, it would be impossible to restore the empire.

However, this was received by the populace as political performance, and there were some who viewed it as a farce, where more than ten hours were lost, which could have been used for the withdrawal.

On the 15th of August, the Royal Guard 2nd Regiment were the last to leave Kyoto. The ancient capital, one of the most prominent in the world, with a history of 1200 years, had sealed its fate under gunfire and rubble.

Operation Lucifer

Operation Lucifer is the name of the operation to capture the Yokohama Hive, yet also encompasses the following operation to retake Honshu. It was conducted on the 5th of August 1999 by the IJF, Far East UN Forces, and COSEAN Forces.

The Operation to Capture the Yokohama Hive Begins

Yokohama Hive was identified to have been constructed in the December of 1998, on a location only several dozen kilometers from Tokyo, the new Imperial Capital of the Empire of Japan. Were this hive to commence a full-scale operation, it would place the defense of Tokyo and even regions further north of Kanto in danger, and such an assault would result in the fall of Honshu within a year.

The UN wanted to avoid the fall of Japan, their key in the defense of the Far East, and so proposed the capturing of the Yokohama Hive to the Empire, upon a request from the Kouzuki Yuuko, the chief executive of Alternative 4.

The Empire of Japan's fate was in crisis, with two hives within its borders—on Sadogashima and at Yokohama. They agreed to this proposal, and both militaries began moving forces to reinforce the Imperial Capital Defense Line, and to prepare for the operation, which was to be conducted in the May of the following year, 1999.

Developments in The Operation

On the 5th of August, 1999, the curtains were raised on Operation Lucifer, with a barrage of naval gunfire from the IJN Combined Fleet and the UN Pacific Fleet.

The BETA would be lured to the north and south by the Imperial Mainland Defense Force, which was deployed along the Tama River, as well as by the UN Forces that landed from Sagami Bay. Meanwhile, the reactor would be suppressed by an infiltrating force of Orbital Divers. This strategic operation had diversionary and orbital drop tactics at its core, and incorporated naval suppression into hive capturing tactics established during the 90's. The operation progressed smoothly, and forces successfully entered the stab.

However, upon entering the hive, it would become apparent that its scale far exceeded that of a Phase 2 hive, as was previously suggested by its monument's size, making it became practically impossible for the infiltrating units to reach the main shaft and reactor.

Headquarters wavered between whether or not to continue the operation—whether to bet on a small chance and send surface forces into the hive, or have forces withdraw in hope of restarting the operation. However, as they were considering their options, a sudden notification came from the US government requesting the immediate withdrawal of forces, for a G-Bomb attack.

The Japanese government was furious over this notification, which was the equivalent of a one-sided order, and requested the attack to be halted. The US ignored this.

After a final notice early in the morning of the 6th of August, the US consecutively dropped two G-Bombs from armored destroyers that were on standby in orbit.

The two G-Bombs detonated in succession in the sky over Yokohama at 8:15 on the 6th of August 1999. Their power was tremendous, carving out the entire monument, as well as part of the stab, and most of the BETA that had emerged on the surface were exterminated.

Furthermore, a large number of BETA in the deep areas of the stab ceased functioning for unknown reasons, and the forces that had withdrawn to the surface were able to successfully suppress the BETA facilities, such as the reactor, by reinfiltrating the stab.

What the G-Bomb Had Brought Forth

During Operation Lucifer, humanity had succeeded in capturing a hive for the first time in the history of the Great BETA War. This was the first clear victory since the commencement of the war, and it was a historic first step towards the survival of humanity.

However, this victory was only made possible by the G-Bomb, and humanity once again realized that conventional forces, including TSFs, were still not enough to capture a hive.

Furthermore, the national sentiment of Japan towards the US was already unfavorable due to the unilateral annulment of the security treaty, but with the unannounced use of a new type of weapon on its own territory, this sentiment reached a new level of hostility.

Aside from the fact that many forces could not evacuate in time, resulting in the losses of many valuable human lives and equipment, there also was a lot of collateral damage caused by the bomb, which was beyond humanity's understanding, such as the anomalies in vegetation. These elicited further hatred, and later formed the G-Bomb threat theory.

Meanwhile, the US managed to impress the world with the success of the G-Bomb's attack, by touting the merits that had been unidentified prior to its deployment, such as the permanent ceasing in functions of individual BETA, and by also suppressing the side effects asserted by Japan.

However, it was later revealed that the US covered up the fact that the power and effective range of the bomb were significantly lower than the theoretical values.

The aspects of the G-Bomb whereby it was an unexplained weapon and was reliant on technology of BETA origin were exposed to the world. Since then, many countries have entered heated debates over the pros and cons of the G-Bomb strategy raised by the US.

Operation Lucifer was not only an operation with an end goal of securing safety by capturing the hive and reclaiming Honshu, but it was also an extremely political operation, where the ideologies of several powers clashed.

Of course, the specific details remain unrevealed, though there are some instances hinting at the political motivations behind the operation. For example, the Imperial government insisted that the operation be conducted with UN Forces mainly consisting of the IJF and COSEAN Forces, while the US government tried to have the UN Forces for the operation consist mostly of the US Military, based on the Vancouver Treaty. Concessions made by these two governments would give rise to difficulties through to the very end. Furthermore, since the selection of the date of the operation was also another political decision, it created significant hindrances in the advance preparations, such as those for logistics.

Also, many military and political activities were forced into the operation to take advantage of the fact that it sought to capture the closest hive to human territory. On top of the aforementioned G-Bomb deployment experiment by Alternative 5 advocates, there were also several demonstrative experiments by Alternative 4, the intervention in orbital operations by Australia and India, and the deployment of Operation Zero. Hence, the actions of many combat units on the field were heavily restricted, as a result of confidentiality.

Although Operation Lucifer was ultimately a victory, it sowed the seeds for further conflicts between the countries and forces that fought on the anti-BETA fronts, such as those between the US and Japan, as well as the conflict between the two competing Alternative plans.

After Operation Lucifer concluded, the construction of a UN base for Alternative 4 was to commence using the hive ruins, by taking advantage of the groups opposed to G-Bombs from nations across the globe, including the US.

This was the establishment of the UN Pacific 11th Force Yokohama Base, which would later carve its name into human history.

"The greatest harm brought forth by the G-Bomb was that it split humanity's unity into two."
—From the address given by Imperial Japanese Prime Minister Sakaki Korechika at the UN General Assembly.



Chapter 07
Global Affairs & World Militaries

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Situations of the World's Governments

Following the emergence of the BETA, the global situation has greatly changed.

In particular, European countries, the Soviet Union, and China have lost vast amounts of their territory as the BETA advanced from the Kashgar Hive, across the Eurasian continent. These nations have fallen to a state of needing to transfer their governing functions to places such as the US and Greenland.

These global affairs would play a role in increasing the influence of the UN and the US.

To the countries that had lost their territory, there was no mistaking that this was undesirable.

Despite this, the top priority of these nations was to reclaim their lost territory. Furthermore, they were not in a state where they could simultaneously conduct military activities against the BETA and engage in political actions against the UN and US.

North America

Not only does the US have an army centered around TSFs, but also military branches for space, air, and naval power. In fact, they are the most powerful nation in the world.

The standard of living of its citizens is very high, and there are no shortages in things like food or recreation.

Despite having made massive profits from selling TSFs to countries across the world, this has lately proven inadequate in supporting their growing military expenditure. Therefore, the US is in a state where it is forced to rely on large-scale issuances of government bonds.

In 1987, fear over the expanding US deficit led to a temporary situation whereby a significant amount of US dollars was sold into the international money market. However, in response to this, the Chair of the Federal Reserve Bank, E. Goldsmith, announced, "If the world is going to hold concerns over the credibility of the USD, the US will look into reviving the gold standard. The Great BETA War has left this world in a state of disarray, and has shrunken its economy. However, guaranteeing the conversion of USD to gold will lead to the stability of the global economy."

With more than 8000 tons of gold held by the US FRB, this was a move by the US to intimidate the international community. Afterwards, distrust towards the USD was dispelled, but at the same time, it also made the world aware that the international economy was under US control.

In international politics, the US boasts significant influence over various countries by selectively selling their TSFs.

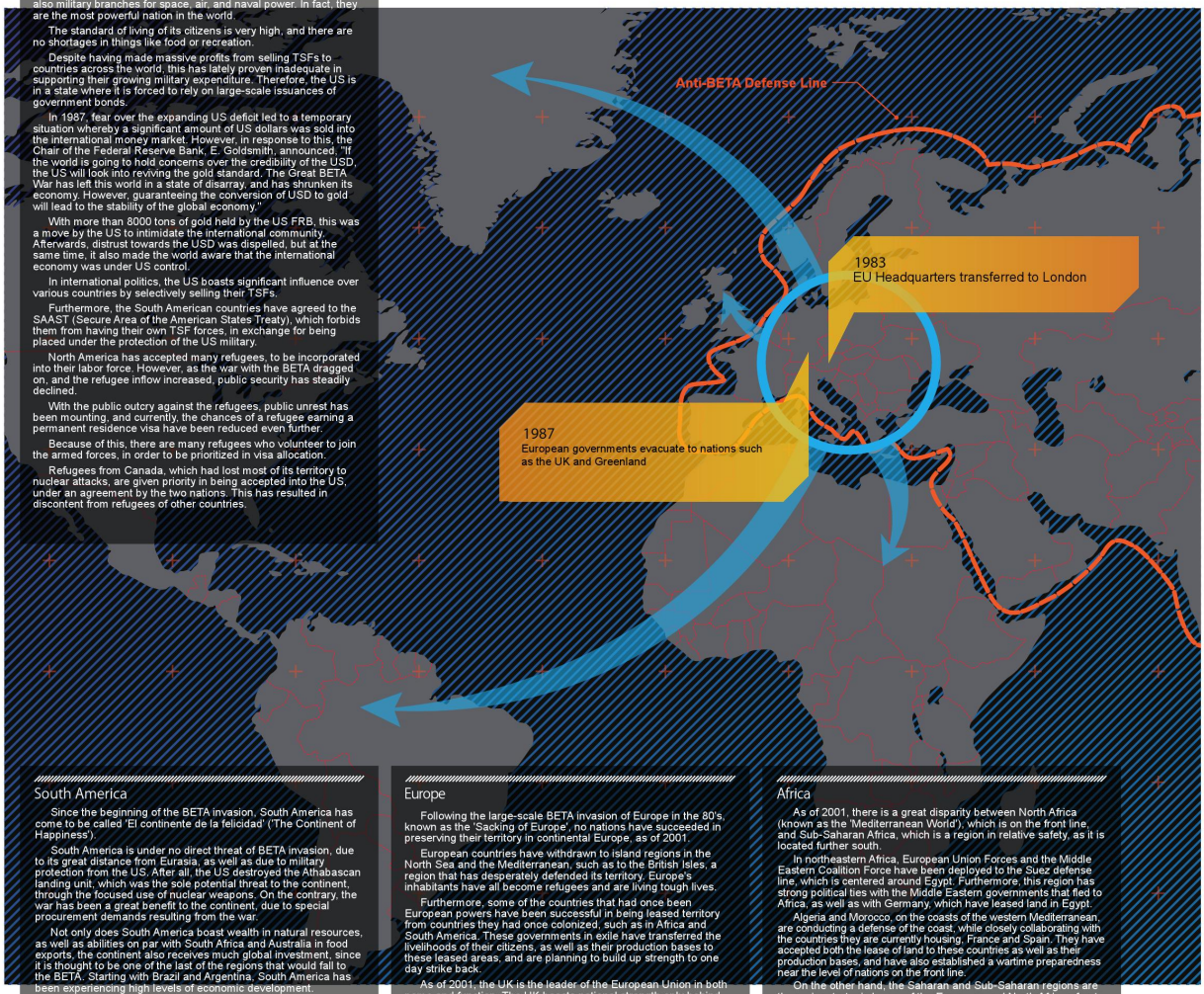
Furthermore, the South American countries have agreed to the SAAST (Secure Area of the American States Treaty), which forbids them from having their own TSF forces, in exchange for being placed under the protection of the US military.

North America has accepted many refugees, to be incorporated into their labor force. However, as the war with the BETA dragged on, and the refugee inflow increased, public security has steadily declined.

With the public outcry against the refugees, public unrest has been mounting, and currently, the chances of a refugee earning a permanent residence visa have been reduced even further.

Because of this, there are many refugees who volunteer to join the armed forces, in order to be prioritized in visa allocation.

Refugees from Canada, which had lost most of its territory to nuclear attacks, are given priority in being accepted into the US, under an agreement by the two nations. This has resulted in discontent from refugees of other countries.



South America

Since the beginning of the BETA invasion, South America has come to be called 'El continente de la felicidad' ('The Continent of Happiness').

South America is under no direct threat of BETA invasion, due to its great distance from Eurasia, as well as due to military protection from the US. After all, the US destroyed the Athabascan landing unit, which was the sole potential threat to the continent, through the focused use of nuclear weapons. On the contrary, the war has been a great benefit to the continent, due to special procurement demands resulting from the war.

Not only does South America boast wealth in natural resources, as well as abilities on par with South Africa and Australia in food exports, the continent also receives much global investment, since it is thought to be one of the last of the regions that would fall to the BETA. Starting with Brazil and Argentina, South America has been experiencing high levels of economic development.

On top of that, because the South American countries have agreed to the SAAST (Secure Area of the American States Treaty), their security has been guaranteed by the US, which now controls their trade. However, in exchange they have abandoned the right to retain anti-BETA forces, such as TSFs.

Apart from small internal security forces, South America has been freed from military burdens, and this has greatly supported the economic development of the continent. However, as they are completely under the protection of the US, their influence in the international community has declined, and they are frequently looked down upon as obedient vassal states of the US.

As of 2001, many military regimes are in power across South America, and those can hardly be called democratic. However, as they have gained the connivance of the US government in exchange for entering the SAAST, there are no signs of them being changed for the better.

Having historically accepted many immigrants, South America remained a major refugee host, even after the commencement of the Great BETA War.

The continent has little racial prejudice, and also has a strong demand for labor as a result of its economic development. South America lives up to its title of the 'Happiest Continent', and is sought after by refugees across the globe.

Despite being under US control, the culture of South America still heavily leans towards being European, as a result of the continent's colonial past. South America accepts many refugees from the Eurozone, predominately from West Germany, which was not able to be leased a sizeable amount of territory.

Europe

Following the large-scale BETA invasion of Europe in the 80's, known as the 'Sacking of Europe', no nations have succeeded in preserving their territory in continental Europe, as of 2001.

European countries have withdrawn to island regions in the North Sea and the Mediterranean, such as to the British Isles, a region that has desperately defended its territory. Europe's inhabitants have all become refugees and are living tough lives.

Furthermore, some of the countries that had once been European powers have been successful in being leased territory from countries they had once colonized, such as in Africa and South America. These governments in exile have transferred the livelihoods of their citizens, as well as their production bases to these leased areas, and are planning to build up strength to one day strike back.

As of 2001, the UK is the leader of the European Union in both name and function. The UK boasts national strength only behind that of the US and the Empire of Japan, due to its production and economic bases, which are spread across its overseas territories and its Commonwealth, as well as due to its military strength, which was able to successfully defended its mainland.

In regards to technology, the UK is able to uphold the dignity of its empire through feats such as leading the development of the EF-2000, the craft of Europe's collaborative development.

Other than the UK, some other nations are able to support the European Allied Forces, and are eager to take back their continent. France has been maintaining a powerful army, and has been granted leased land and production bases in Algeria, which is a country relatively close to Europe. Italy holds large islands such as Sardinia and Sicily as areas to retreat to, and they have a navy specialized for the Mediterranean Sea. West Germany, though lacking in leased land, has high technological capabilities and an excellent military structure. The relationship of West Germany to Britain is akin to that of a mercenary.

Furthermore, Scandinavian countries, which have retreated to Greenland, have a certain degree of international presence resulting from factors such as having their own unique TSFs. Both Scandinavia and Western Europe are compensating for their loss of population and productivity by relying on their traditions of organization and technological power.

Though the Eastern European countries were once all labeled as the 'Eastern Bloc', they have now formed the Eastern European Socialist Alliance. Even in regards to technology, they have imported things such as TSF from the Soviet Union.

However, the Soviet Union itself is currently pouring all of its strength into Alaska and the Far East region, and its presence in Eastern Europe has significantly declined.

The current Eastern European Socialist Alliance would not have been established without assistance from Western nations, and they are taking measures to reduce the distance between themselves and the Western Bloc by doing things such as taking part in the European Union as an observer, and conducting joint operations with the European Union Forces.

Africa

As of 2001, there is a great disparity between North Africa (known as the 'Mediterranean World'), which is on the front line, and Sub-Saharan Africa, which is a region in relative safety, as it is located further south.

In northeastern Africa, European Union Forces and the Middle Eastern Coalition Force have been deployed to the Suez defense line, which is centered around Egypt. Furthermore, this region has strong political ties with the Middle Eastern governments that fled to Africa, as well as with Germany, which have leased land in Egypt.

Algeria and Morocco, on the coasts of the western Mediterranean, are conducting a defense of the coast, while closely collaborating with the countries they are currently housing, France and Spain. They have accepted both the lease of land to these countries as well as their production bases, and have also established a wartime preparedness near the level of nations on the front line.

On the other hand, the Saharan and Sub-Saharan regions are the major strategic bases of the European and North African fronts. These regions have been supporting the demand for resources ever since the fall of Eurasia, by utilizing their wealth of natural resources and fertile cropland. The region is not only a simple producer of resources, rather, it has received capital from across the globe, as a potential region of mankind's final retreat. This investment has seen several industries being propped up, and has resulted in the region achieving rapid developments in not only its economy, but also in infrastructure, to modernize the region.

Africa's cultural ties with Europe have always been strong, considering that the decolonization of Africa after WWII, which involved the withdrawal of European settlers out of Africa and the assimilation of Europeans into Africa, had been relely peaceful. So when the flames of war hit Europe, several European nations transferred their production bases to Africa.

Furthermore, after the fall of Europe, Africa accepted many governments and refugees in exile while offering vast areas of land for lease. This led to the rapid acceleration of the 'Europeanization of Africa', especially on the coasts and central areas. There are also nations, such as the Republic of South Africa, which have actively conducted exchanges with these European governments and businesses, in order to achieve their own growth.

Currently, Africa is undergoing major urbanization centered around harbor cities like Mogadishu and coastal cities in countries such as Sierra Leone, as well as with inland resource and production bases in countries like Uganda. These locations are enjoying the prosperity from the heightened demand for resources caused by the war. However, compared to European nations, whose governments in exile still hold a portion of their domestic capital, it is becoming clear that the African governments, the hosts, are having their influence diminished. This is resulting in the view that a 're-colonization' by Europe is occurring. An 'African Coalition', consisting mainly of Northern and Central African nations has been formed to try to unify the various militaries of each nation, and to gain political power, though this coalition cannot be considered adequately functional by any stretch. Finally, as there have been dramatic increases in living standards and job opportunities, most typical African citizens are pro-Europe, and the voices of other factions are being silenced.

Soviet Union

As of 2001, the Soviet Union is a socialist state under the single party rule of a communist government.

However, the real situation is far removed from the ideal communist ideology, rather, it is much closer to being a totalitarian state.

Their formation—ethnic minorities on the front lines with upper class citizens behind them, clad in cutting-edge equipment—has not changed since the beginning of the Great BETA War.

Revolts against racial discrimination have broken out in several places, but most were immediately suppressed, with none reaching a level able to overthrow the national policy.

In 1975, the Soviet Union relocated their capital from Moscow to Khabarovsk, located in the eastern part of the Eurasian continent.

In 1982, the Soviet Union started to transfer core national functions, following the decision by the US to lease Alaska.

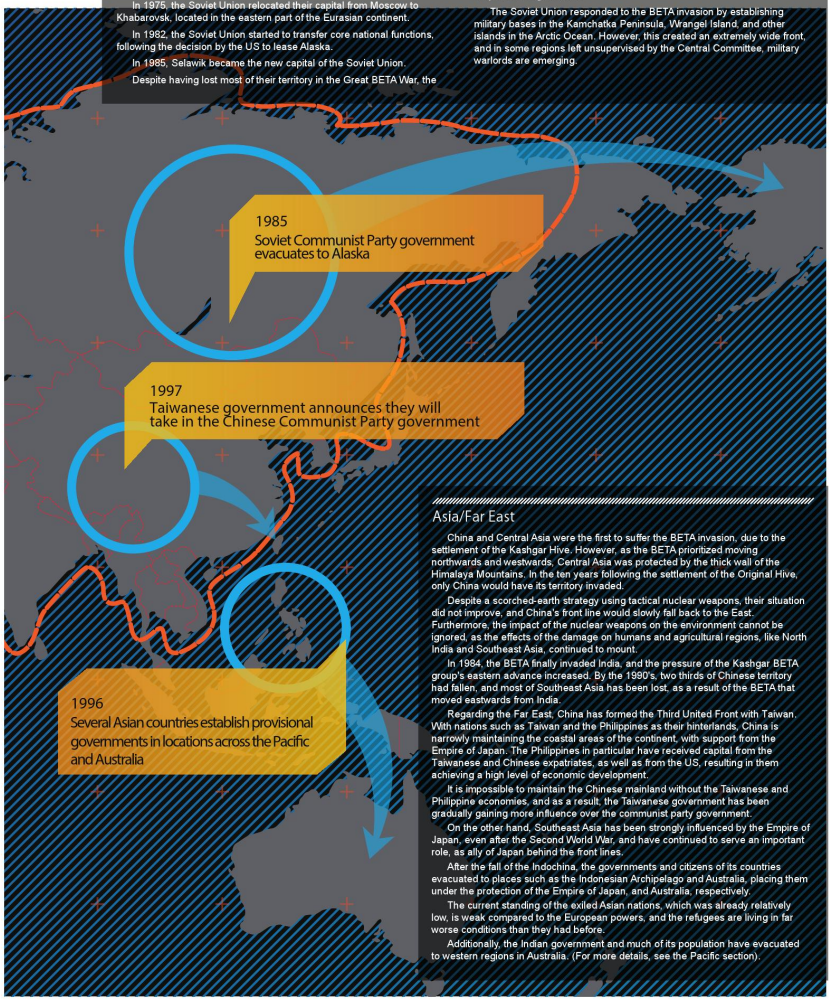
In 1985, Selawik became the new capital of the Soviet Union.

Despite having lost most of their territory in the Great BETA War, the Soviet Union maintains extremely high technical capabilities in the development abilities and scientific technology of their heavy industries, compared to their neighboring nations. This is a result of many drastic policies, strongly guided by the Communist party.

Furthermore, they are investing an excessive amount of resources into developing mines and drilling for oil in Alaska. This has led to new tensions with the US, which had originally leased Alaska to them.

Soviet TSFs are exported at cheaper prices than US TSFs, and they are well-received from a cost-performance perspective. Therefore, they are seen by the Soviet Union as important for acquiring foreign currency, and for political negotiations.

The Soviet Union responded to the BETA invasion by establishing military bases in the Kamchatka Peninsula, Wrangel Island, and other islands in the Arctic Ocean. However, this created an extremely wide front, and in some regions left unsupervised by the Central Committee, military warlords are emerging.



Asia/Far East

China and Central Asia were the first to suffer the BETA invasion, due to the settlement of the Kashgar Hive. However, as the BETA prioritized moving northwards and westwards, Central Asia was protected by the thick wall of the Himalaya Mountains. In the ten years following the settlement of the Original Hive, only China would have its territory invaded.

Despite a scorched-earth strategy using tactical nuclear weapons, their situation did not improve, and China's front line would slowly fall back to the East. Furthermore, the impact of the nuclear weapons on the environment cannot be ignored, as the effects of the damage on humans and agricultural regions, like North India and Southeast Asia, continued to mount.

In 1984, the BETA finally invaded India, and the pressure of the Kashgar BETA group's eastern advance increased. By the 1990's, two thirds of Chinese territory had fallen, and most of Southeast Asia has been lost, as a result of the BETA that moved eastwards from India.

Regarding the Far East, China has formed the Third United Front with Taiwan. With nations such as Taiwan and the Philippines as their hinterlands, China is narrowly maintaining the coastal areas of the continent, with support from the Empire of Japan. The Philippines in particular have received capital from the Taiwanese and Chinese expatriates, as well as from the US, resulting in them achieving a high level of economic development.

It is impossible to maintain the Chinese mainland without the Taiwanese and Philippine economies, and as a result, the Taiwanese government has been gradually gaining more influence over the communist party government.

On the other hand, Southeast Asia has been strongly influenced by the Empire of Japan, even after the Second World War, and have continued to serve an important role, as ally of Japan behind the front lines.

After the fall of the Indochina, the governments and citizens of its countries evacuated to places such as the Indonesian Archipelago and Australia, placing them under the protection of the Empire of Japan, and Australia, respectively.

The current standing of the exiled Asian nations, which was already relatively low, is weak compared to the European powers, and the refugees are living in far worse conditions than they had before.

Additionally, the Indian government and much of its population have evacuated to western regions in Australia. (For more details, see the Pacific section).

Middle East

In 1973, the Middle East was directly faced with the western advance of the BETA from the Kashgar Hive. Along with the Soviet Union, this region became one of the first to suffer significant damage.

The Arabian Peninsula managed to hold out until the 90's, since the main forces of the BETA advanced from Anatolia into Eastern Europe. However, as of 2001, the Middle Eastern countries have ended up losing all of their territories, and the government and people of the region have crossed through Egypt to flee into Africa.

As of now, the Middle Eastern countries with exiled governments have formed the Middle Eastern Coalition, and have established the Suez Absolute Defense Line on the Sinai Peninsula, while closely coordinating with the Egyptian army and the European Union forces.

This coalition has mainly been formed from the '1st Anti-BETA Jihad', which was created in 1978 to lead a counter-offensive against the BETA. The nations that had been pro-US since the formation of the Jihad—Saudi Arabia, the Empire of Iran, and the United Arab Emirates—continue to play a central role, even after the formation of the Middle Eastern Coalition forces. This is due to the fact that their pro-US leanings entitled them a priority in receiving the cutting-edge American weapons in the F-4, making them practically the only fighting powers in the Coalition.

Because of this, the Middle East has maintained a positive relationship with the US, which is continuing its support of the Middle Eastern Coalition, with the goal of retaking the oil fields.

Oceania

Australia is without a doubt the leading power in the Pacific, and the country rules over the Asia/Pacific region, as one of the great powers, on par with Japan and the UK. Australia has reached this position by taking advantage of its large amount of land, which is separated from BETA controlled territory by ocean.

Australia's neighbors include Indonesia, which is under strong Japanese influence, and the Philippines, which is under Chinese and Taiwanese influence while receiving US support. Since the withdrawal of the US from Japan, Australia, Indonesia, and the Philippines have all been vying for supremacy in the Pacific Ocean, making the region a major political hotspot, even after the outbreak of the Great BETA War.

As of now, Australia has used advanced technology to successfully turn its territory into arable farmland, granting the nation much influence as one of the largest food exporters in the world.

Aside from being active in the exploitation of seabed resources, Australia devotes itself to making developments in technology and bolstering its military strength. To accomplish the latter two goals, Australia actively accepted scientists, engineers, and military personnel fleeing from India and the Middle East.

On the other hand, many of the refugees are used as manual labor, and though it is true that Australia has saved many lives by accepting refugees, the country is often criticized as being a 'slave driver', like the US.

The 'White Australia' policy is still very prominent, and other discriminatory policies can be seen through acts such as treating Indians as 'Honorary Whites' in order to gain their cooperation.

Although Australia is in a cooperative relationship with the Empire of Japan for the defense of East Asia, it is difficult to call this relationship friendly, based on their overlapping spheres of influence.

Meanwhile, New Zealand is referred to as 'the furthest landmass from the BETA in the eastern hemisphere', and is becoming a popular place of refuge for the rich elites of several countries. Many celebrities are also seeking refuge in places such as Samoa, Fiji, and Micronesia.

TIME LINE

1944
World War II concludes

1946
US: Space Command established

1950
Japan-US Security Treaty instated

1959
UN: Summons 'Dignified 12', a secret military research organization

1961
Japan: Imperial Aerospace Force founded, control of Prometheus Program transferred

1973
China/Soviet Union: Scorched-earth strategy commences with tactical nuclear weapons against the BETA invading from the Kashgar Hive

1974
The global population has declined by 30%
US: Strategic Defense Initiative announced
The UN and Japan cooperate with the Strategic Defense Initiative

1975
Soviet Union : The Communist Party government relocates capital functions to Khabarovsk

1976
BETA in Eurasia commence northwards advance
Japan: Akebono Program commences

1978
Operation Palaiologos is conducted in Europe

1980
Soviet Union: Puts forward the idea to the US to lease Alaska
Japan: Conscription revived

1982
US: Congressional approval given to lease Alaska to the Soviet Union

1983
US: ATSF Program commences
Europe: EU Headquarters relocated to London

1984
India: Kashgar Hive BETA group begins southwards advance

1985
Soviet Union: Key state functions relocated to Alaska
Europe: West Germany and France fall to the BETA invasion.
UK commences defense of the British Isles

1986
The Third United Front is formed
Japan: Imperial Japanese Mainland Defense Force is formed

1987
Europe: European governments flee to the UK and Greenland

1989
Middle East: Combat in the Arabian Peninsula intensifies

1991
Japan: The Imperial Diet creates the IJF Continental Expeditionary Force

1992
India: Operation Swaraj commences

1993
Europe: BETA suppress the entirety of Europe
China: Operation 9-6 commences

1995
UN: The global population is announced to have declined by 50% since the beginning of the Great BETA War

1996
Asia: Several Asian countries begin to relocate state functions to Australia and the Pacific
Several South-East Asian countries form the Coalition of South-East Asian Nations
The Christian faith rapidly increases in followers worldwide

1997
Taiwan: The Presidential Office announces that Taiwan will accept the Communist Party of China

1998
Japan: Operation Gwangju commences to support the withdrawal from the Korean Peninsula
Japan: Tsushima and Sadogashima fall. Kyoto falls a week after
US: Unilaterally annuls the Japan-US Security Treaty. US troops withdrawn from Japan
Japan: Preparations commence to relocate capital functions to the second Imperial capital of Sendai
Japan: BETA commence construction of a Hive in Yokohama
UN: Expansion work on Yukon Base is completed

1999
UN: Operation Lucifer commences to retake Honshu
UN: Construction commences on Yokohama Base

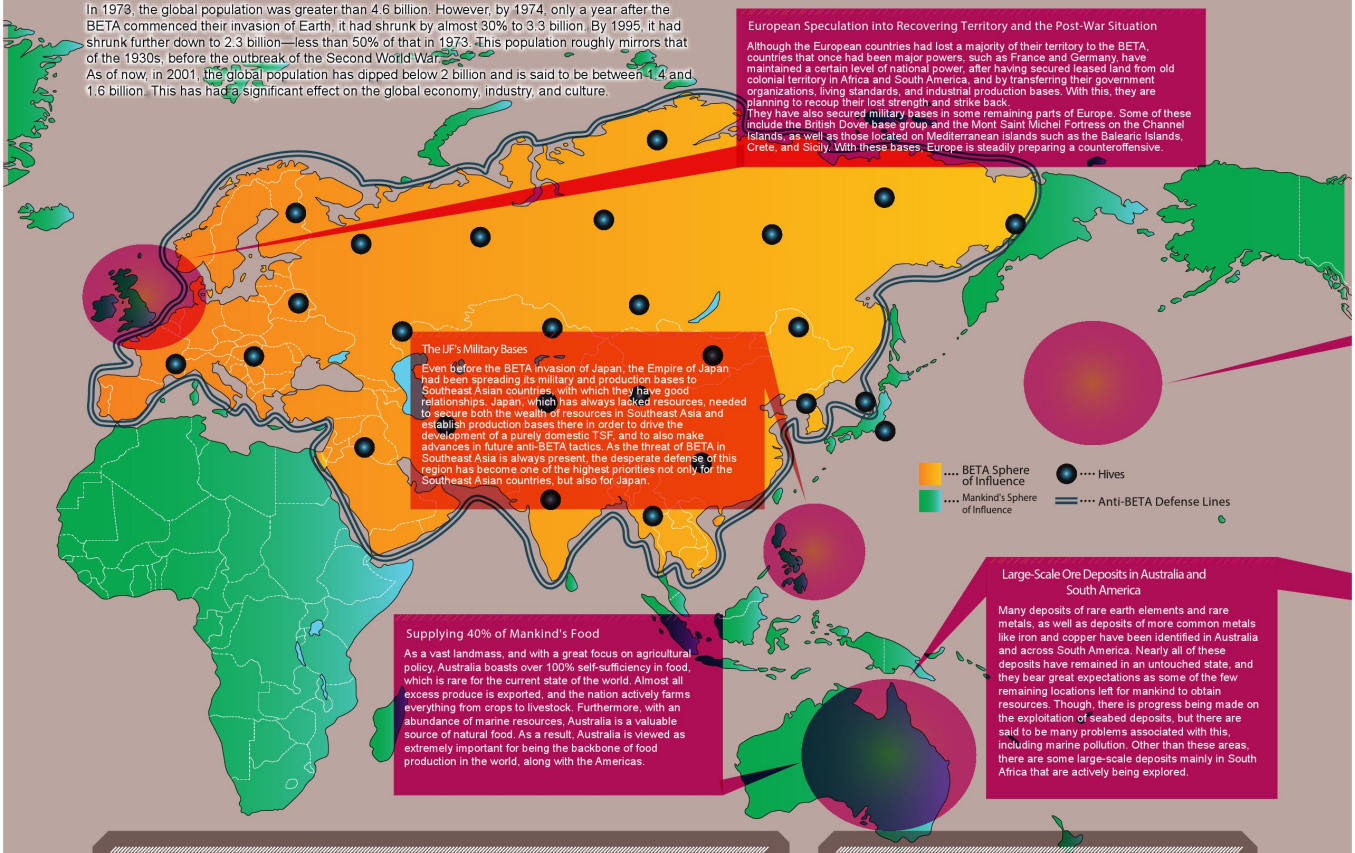
2001
UN: Yokohama Base becomes operational
12-5 Incident occurs
Operation 21st conducted, the Sadogashima Hive is successfully destroyed

2002
Operation Cherry Blossom commences under UN leadership, to capture the Original Hive

World situation as of 2001

Governments in locations across the Pacific and Australia

In 1973, the global population was greater than 4.6 billion. However, by 1974, only a year after the BETA commenced their invasion of Earth, it had shrunk by almost 30% to 3.3 billion. By 1995, it had shrunk further down to 2.3 billion—less than 50% of that in 1973. This population roughly mirrors that of the 1930s, before the outbreak of the Second World War.
As of now, in 2001, the global population has dipped below 2 billion and is said to be between 1.4 and 1.6 billion. This has had a significant effect on the global economy, industry, and culture.



Lifestyle and Culture

Much like industry, culture and lifestyle under the war with the BETA varies greatly between nations on the front line and those further back.

In particular, there are many tactics the BETA do not employ that are common in conventional warfare, such as bombing and commercial raids, which are directed at areas behind the front lines. Hence, even with absolute restrictions on some goods, areas distant from BETA-controlled territory have been able to maintain lifestyles relatively similar to those before the war. The greatest example of this can be seen in the US.

Furthermore, as there is no concept of 'hostile culture' like there was during the Second World War, cultural and creative activities are performed as often as possible to help boost the morale of those living under wartime conditions.

However, almost every country sees that some form of state censorship is necessary, as there is the necessity to control BETA-related information and there is not enough leeway to tolerate antisocial ideas and activities that go against national unity. Other ways to exercise censorship were to have the government run the media, or through partial restrictions on the freedom of assembly.

Furthermore, with the absolute lack of goods, large-scale entertainment industries are starting to become abolished, even in nations further back from the front line (exceptions include the US).

Music is an example of a common form of entertainment and culture that has remained active, even after the outbreak of the Great BETA War.

From problems related to distribution of physical products, the circulation of records has been restricted, but music as a whole has still managed to hold its popularity through things such as radio broadcasts.

However, propaganda music, such as war songs, are usually unpopular, whereas jazz, pop, and ethnic/traditional music are more liked.

Despite this, no country has the spare capacity to support a large enough number of professional musicians to form what could be considered a music industry, so while music has remained active, it is becoming less and less prolific than it was prior to the war.

On the other hand, trends have emerged such as how people tend to like a single piece for a longer period of time, and how classical music has become more popular than prior to the war.

Finally, contemporary music from the US and Africa tends to become popular, since these countries possess the spare capacity for producing music. Literature, as well as comics, have also remained as staples in popular culture.

While large-scale entertainment has fallen out of favor, the low price and portability of books are appreciated in any region, whether it be on the front line or further back.

However, books tend to rely on distribution even more than music, resulting in a decline in the numbers of new publications. To make up for this, the numbers of second-hand book distributors and book rental stores are increasing.

Theater and other staged performances, unique to each nation's culture, are also popular forms of entertainment for regions further behind the front lines.

On the other hand, people have recognized that all countries use television as a means to spread propaganda. Because of this, most television broadcasts do not reach international popularity, seeing as foreign broadcasts are generally propaganda.

Furthermore, in regards to movies, there are high restrictions on budgets, leading to propaganda films becoming mainstream among new productions. However, old films that were made prior to the latter half of the 1970's, such as space opera films, are being repeatedly aired.

Apart from film, another example of a form of entertainment that is starting to go obsolete is professional sports, such as baseball, which requires large amounts of funds and capital.

As an exception, the US still maintains four major ball sports—baseball, American football, basketball, and ice hockey—and the ability to host these sports shows the difference in national strength of the US compared to other nations. Other than this, a large-scale soccer league still exists in South America and Africa, even after the fall of Europe. However, traditional sports leagues of the final strongholds of Eurasia, such as the UK and the Empire of Japan, were abolished years prior to the invasions of their respective mainlands.

Furthermore, in the 1970's, entertainment using computers to imitate real life baseball or gambling began to appear, but with all of the electronics industry being immediately diverted to support the military industry, and its weapons such as TSFs, these forms of entertainment would not become popular, following the outbreak of the war.

Culture on the front lines / Culture takes a different form for nations on the front lines, or nations that have already lost territory to the BETA.

The UN actively protects religion, traditional customs, dress, and language, with the goal of maintaining the morale of those who had lost their land. One observed trend involves an increased sense of national pride and attachment in refugees, compared to prior to the war.

Some people say that these actions by the UN are a desecration of the original culture, especially since they are prone to being reduced to symbols and abstractions. However, it is undeniable this boosts the morale of the refugees, who are forced to live in harsh conditions.

Environmental Resources

Energy: With the losses of resource-rich areas such as the oil fields of the Middle East and Russia, nuclear power has become globally adopted. Fossil fuel energy has also been secured through the exploitation of oil fields in Central and South America, as well as through ocean resources, like methane hydrate, in places such as the Arctic Ocean. However, the development of fuel batteries using mostly hydrogen has made a greater contribution to mankind's energy needs.

Since the lunar development era before the 1970's, hydrogen fuel batteries were being developed as an important source of energy for use in space environments. As of now, they allow safe and highly efficient power generation, by using a metal, like magnesium, as a catalyst to stabilize the hydrogen. They are even used in some weapons, such as in TSFs.

Furthermore, by separating these catalyst metals from seawater, it is possible for these batteries to be renewable, so that naval vessels and offshore facilities don't need to resupply.

Resources: As Australia and South America have always been home to many large-scale deposits for key metals, such as iron and copper, the war has not drastically changed the availability of these resources. However, because rare metals, such as palladium, and rare earth elements exist in places such as Russia and China, the losses of those territories have hence had a significant impact on the supply of such resources. As a result, several locations across the ocean floor, and locations in South America and Africa are hurriedly being developed for resource extraction. In particular, the demand for rare metals has become urgent, due to the explosive demand for electronic parts for weapons such as TSFs.

Due to this, metals are often salvaged from the remains of weapons and extracted from contaminated soil where heavy metal clouds were formed in battlefields where BETA have been successfully defeated. These locations have been collectively nicknamed 'battlefield mines'.

On top of this, as has been mentioned in the section on hydrogen batteries, there are large-scale operations to extract metals from sea water, and to collect sludge containing heavy metals, which has flowed out from rivers on the Eurasian continent and onto seabeds.

In marine areas where heavy metal clouds have seen frequent use, such as those on the anti-BETA front lines, metals can also be extracted from marine life, due to biomagnification.

The proteins obtained from this extraction process can also be used as the raw materials from some synthetic foods.

Environmental Protection: Due to mankind's military activities against the BETA, and the BETA themselves, the environment of Earth is suffering significant damage. However, environmental awareness has shot up rapidly as a result of the direct sense of the threat towards the ecosystem.

Notably, in places such as the US, there is tangible research being conducted into fields such as maintaining the functions of forests, and the utmost consideration is given to protecting the environment in areas free of either BETA or combat.

Many forests are being devastated by the BETA, especially in Siberia, but it is thought that the BETA are 'collecting' trees as resources instead of just destroying them. Furthermore, since the destroyed forests groups were stabilized and had finished growing (that is, they were carbon-neutral), no increase in the concentration of carbon dioxide in Earth's atmosphere has been observed, as of now.

The Food Situation

As of 2001, the humanity's food situation is in a state of polarization. For nations on the front lines, such as Japan and the Soviet Union, food production capabilities have plummeted due to the devastation of their territory and the decline of agricultural laborers caused by the BETA invasion.

They are barely able to avoid a situation involving the starvation of their populace, through food aid from the UN, and even by using synthetic food as substitutes.

On the other hand, in nations further away from the front lines, such as the US, Australia, and countries in South America, agricultural production capabilities have been expanded in an effort to fulfill their roles as global food supply bases. Of these nations, some have even surpassed a food self-sufficiency rate of 300%.

However, as these nations have been mandated to mainly produce grains, which have a high yield per unit, luxury goods such as fruit, alcohol, and tobacco are treated as valuable commodities.

Furthermore, there are harsh limits enforced on livestock, since they lead to an inflated consumption of grain. Recently, of the people born in refugee camps, there is an increasing number of those who have only ever consumed synthetic proteins.

As the global agricultural output has harshly declined compared to before the Great BETA War, due to the abnormal weather resulting from the environmental destruction caused by the BETA, it is not an overstatement to say that the agricultural output of nations away from the front lines support all of humanity.

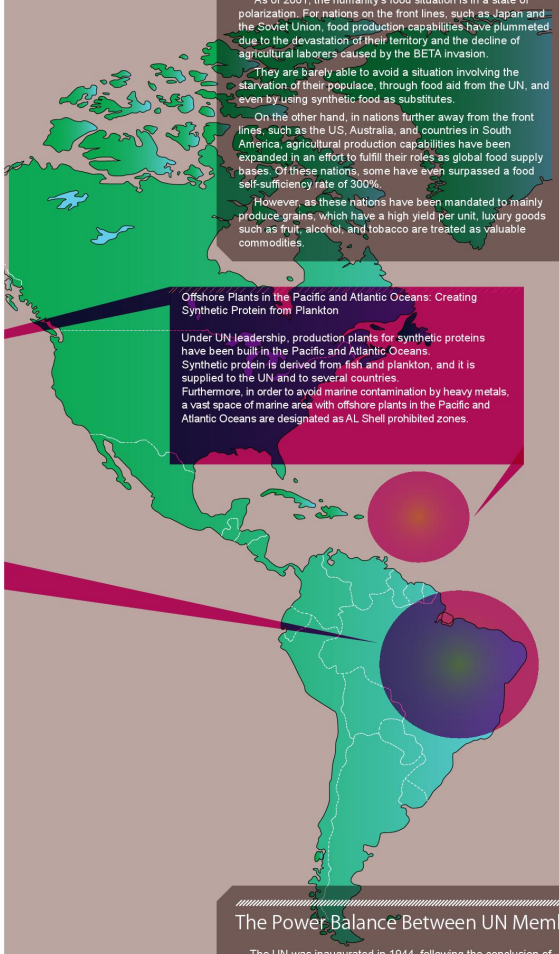
On top of this, large areas in the middle of the Atlantic and Pacific Oceans have been designated as AL Shell prohibited zones. These zones are where UN offshore plants for extracting artificial proteins from fish and plankton are based.

The food rations in the UN Forces mainly consist of food produced in these offshore plants. Since aquatic resources from Eurasian coastal areas are contaminated by heavy metals, they are not immediately used as food.

Rather, they are broken down at refineries, and once the heavy metals have been recovered, they are sent off as synthetic food.

According to official data from the UN's Food and Agriculture Organization (FAO), the removal of the heavy metals is guaranteed to be at a level with no effect on the human body, and there is no prioritization of sending the synthetic foods from these coastal plants to refugee camps. However, the truth behind these statements remain contested.

The synthesized food for Surface Pilots are highly digestible and have a high nutrient absorption rate. They are also engineered to result in almost no solid waste.



Offshore Plants in the Pacific and Atlantic Oceans: Creating Synthetic Protein from Plankton

Under UN leadership, production plants for synthetic proteins have been built in the Pacific and Atlantic Oceans. Synthetic protein is derived from fish and plankton, and it is supplied to the UN and to several countries. Furthermore, in order to avoid marine contamination by heavy metals, a vast space of marine area with offshore plants in the Pacific and Atlantic Oceans are designated as AL Shell prohibited zones.

Industry

As of 2001, industry in each country has changed drastically due to circumstances such as the global shift to a wartime regime, the significant declines in population and territory, which are the foundations of economies, and the loss of several resource zones, such as oil fields.

First of all, as previously mentioned, primary industry (raw materials) is under stricter control than before, across all countries, as they push for higher efficiency.

It is ironic that the current food supply is narrowly managing to strike a balance with demand, only because of the significant loss of population.

In many countries, secondary industry (manufacturing) had quickly become incorporated into the military industry system, to directly support the anti-BETA War. Tertiary industries (services) have been forced to shrink in size, but the degree of this is strongly correlated to the level of urgency in regards to the threat posed by the BETA to a country.

For countries such as the US and Australia, with no imminent BETA threat to its territory, there is an active private-sector demand, and a level of industrial output capability has been maintained to meet it.

Furthermore, although these nations have certain levels of restrictions in regards to goods, certain sectors that cater to civilians such as the service industry and the entertainment industry have been left in a relatively healthy state.

Nations such as Britain and Japan have conducted successful defenses against BETA invasions and have maintained a certain degree of territory while spreading out their industrial bases overseas. Countries like these are on equal footing with the US in their ability to meet civilian demands, and in order to support the lives of citizens, they have relatively active economies.

However, wartime restrictions regarding logistics have become extremely harsh, and things such as the entertainment industry were immediately placed under state control in order to produce propaganda to increase the will to fight. This has become the case since these nations have exhausted much of their national strength during the all-out defenses of their territories, and from the fact that they are currently the front lines, as of 2001.

For nations in Eurasia and Europe that have lost their territory, there are only very few that have maintained a level of economic activity high enough that could be considered an industry.

Former European powers such as France and Germany have secured leased territory mostly in Africa, while the Soviet Union has done so in Alaska. Not only have they retained the backbone of their governments, but they also sustained a certain degree of living standards and industrial production bases. However, most of their production capacity is being directed towards the military, in preparation for reclaiming their territory.

For nations other than these, the entirety of their population has become refugees, and the nations themselves are unable to do anything more than enter military service under UN administration.

Meanwhile, fields such as domestic financial businesses are still functioning in nations that have intact territories. However, the currency of small or exiled nations with no leased land have completely lost their credibility, resulting in the failure of their currencies. Alongside the centralization of the US Dollar, the Japanese Yen is circulated as a domestic currency in most countries across Asia, and the Euro has moved to Africa to become the domestic currency of many nations on the continent.

Furthermore, all types of international fundraising, whether private or military, is under the control of the International Bank for Wartime Development (IBWD), which was established under the UN's World Bank. Finally, almost no free markets exist on a scale that can be considered an international financial market.

The Power Balance Between UN Member States

The UN was inaugurated in 1944, following the conclusion of World War II. Even with the backdrop of the East and West conflict of the Cold War, the underlying international society of the UN has still been maintained, even as of 2001. However, this system has seen significant changes following the BETA invasion of Earth.

The main causes of this include the downfall of former permanent members of the Security Council, as well as the appearance of the UN Forces command structure, which is led by the US.

The Downfall of the Security Council's Permanent Members: Since its inauguration, the UN had five powers as permanent members of the Security Council: the US, the UK, France, the Soviet Union, and China. However, after the BETA invasion of Eurasia, following the settlement of the Kashgar Hive in 1973, all of these permanent members, except for the US, have suffered devastating losses.

Firstly, even before 1980, the Soviet Union lost the core of its nation, the region to the west of the Ural Mountains, which forced them into a state of constant defense even across Siberia. Next, France lost all of its territory in 1987, and by the end of the 1980's, China had lost half of its territory as well.

The UK was the only member that narrowly achieved a victory with their mainland defense of 1975, but still suffered significant material and human losses.

By spreading industrial production bases overseas, even while preserving their mainland, the UK has maintained a national strength on the level of the US and the Empire of Japan, and they possess a relatively high level of global influence.

Meanwhile, China formed the Anti-BETA United Front with Taiwan (The Third United Front), to defend the coastal areas of their continent. The front is supported by their economic power, which comes from the Chinese expatriates living in safety across the globe.

Furthermore, France and the Soviet Union have both had large amounts of land leased to them overseas. France has land in Africa and Quebec, Canada, while the Soviet Union secured land in Alaska. By holding onto the backbones of their nations and living standards, they have avoided falling into a situation of becoming exiled nations where even the governments have been placed in refugee camps.

However, the weakness of these four members and the heavy decline of their influence is apparent in a few situations. For example, while they were pressured with the defenses of their own nations, the leadership of the UN Forces was assumed by the US (※Refer to the Vancouver Agreement section). Also, despite holding leased land, the weaker members apart from the UK have been faced with continuous combat while in an inferior state, forcing them to require military support from UN forces, and support from nations not at the front lines, such as Australia.

These nations were only barely able to maintain the mere appearance of a 'major power', by using their military and other technology, which were essential for anti-BETA combat, as diplomatic tools (※ 1) and by clinging onto their right to veto as permanent members of the Security Council. (※ 1) A typical example of this is Alternative 3, led by the Soviet Union.

The Perspective of the US and New Permanent Members of the Security Council: On the other hand, it can be said that the US is using the UN as much as possible, in order to uphold their reputation as a liberal, democratic leader in the international community. After all, not only had the US eliminated the second landing unit in Canada and kept their territory ever since, the US are also peerless when it comes to the TSF, the most important piece of technology for anti-BETA combat.

Before the Great BETA War, the US was not able to freely make decisions for the UN Security Council due to the vetoing powers of China and the Soviet Union. However, with the fall of other permanent members, the US was able to limit the influence of China, the Soviets, and France, to a certain degree, by hinting at the possibility of creating a new framework for an international society, with the US and the UK as the main members.

Finally, in 1987, the Empire of Japan and Australia entered the group of the five powers, by being introduced as new permanent members of the Security Council. This was a part of US foreign policy, which chips away at the power of other permanent members while publicly pushing for a stance of international cooperation.

The Empire of Japan achieved a miraculous recovery after World War II, and has ended up as a powerful nation with a good balance between military, economy, and technology.

Even after the commencement of the Great BETA War, the Empire continued to develop its economy with the benefit of having no direct exposure to combat from the Eurasian continent, and it has secured many production bases overseas, in places such as Southeast Asia, which they have good relations with.

Furthermore, in regards to military, they have become a force that cannot be ignored, especially with their unique theories in regards to TSFs.

Australia has its stable food supply to use as a political bargaining chip, and also boasts enormous economic power.

Not only does Australia have a strong international influence, due to their large-scale acceptance of refugees, they have also taken utmost advantage of the benefits of the lack of fighting by actively investing in several ventures. Furthermore, by securing human capital from Indian and Middle Eastern refugees, Australia's latent ability related to technology is rising.

However, while the Empire of Japan and Australia formally stand a cooperation regarding resource and economic development in the Pacific region, their relationship cannot truly be called friendly, as their national strengths are similar and their spheres of influence overlap. This has created an intense rivalry between the two.

Japan and Australia are strongly influenced by the US and the UK respectively, and some have criticized their instatement as permanent members into the Security Council as just giving the US and the UK an extra vote each.

However, it is undeniable that both nations have a strong influence over global affairs, and due to their rivalry, it would be difficult for these powers to simply align themselves with one another. Furthermore, speculation from outside the US states that the participation of these two countries could create a candidate to rival the centralized structure of the US. This perspective has become popular in the international community.

The entry of both these countries as permanent members was adopted in a UN General Assembly Resolution. The resolution was called the NAU Resolution, based on the names of the proposed countries (Nippon, Australia), and it was approved in a Security Council resolution by the previous permanent members. (France and China abstained).

However, the right to veto for both the Empire of Japan and Australia is frozen for 20 years, until 2007.

Other than the nations described here, those in South America and Africa are touted as examples of nations that have been able to enjoy rapid economic development, while being far away from the front lines of anti-BETA combat. Of these, there are some that even rival Japan and the UK in economic power alone.

However, all of South America has enjoyed the prosperity by abandoning much of their military strength and political influence to the US. Even in international matters, such as with the UN, they exist in the shadow of the US.

Countries in Africa have become increasingly modernized and have experienced rapid developments in infrastructure, following the focused investment of capital by exiled European governments and private European companies. It is not uncommon to see large port cities such as Mogadishu, Somalia, lined with skyscrapers. However, as this capital is held by foreign companies, the influence of domestic governments is low, and Africa's only way to have a voice in the international community is by speaking through the European countries.

World Militaries

UN Combined Forces

At the commencement of the Lunar War in 1967, mankind formed the 'UN Forces', based on Article 43 of the UN Charter, and sent this force to the Moon as the UN Space Force. However, following the BETA invasion of Earth in 1973, the militaries of the world's countries were generally deployed into anti-BETA combat based on the political alliances of the region or country being attacked.

The UN Forces would once again be formed via the Vancouver Agreement of 1979, but at that point in time, it was nothing more than the UN Chiefs of Staff Council (UNCSC) taking command of forces supplied by several nations as necessary during operations. Therefore, at the time, there was nothing along the lines of a permanent military strength unique to the UN Forces.

However, as nations started to lose their territory to the BETA invasion, it became difficult for these nations to preserve their militaries alone, so they began to be permanently incorporated into the UN Forces in rapid succession.

This was able to happen due to many circumstances aligning at once. Firstly, each exiled government aimed to retake their territory by borrowing the UN's strength. Secondly, the major powers wished to retain their militaries for themselves, instead of placing them under UN command. Finally, the UNSCS sought to secure direct control of forces that would not be swayed by the politics of the nations offering them. This new force would end up playing a significant role in humanity's defenses.

As of 2001, the UN has secured and currently administrates six Regional Forces, as well as a Space Force, with a total of 3,000,000 personnel. They are re-organizing their forces in preparation for a counteroffensive on the Eurasian continent.

There are three types of the forces that form the UN Forces. The first is the original organization of the UN Forces, which is a temporary force where each country offers forces to the UN, and grants the UN command over them. These forces are assembled in response to specific operations or long lasting defenses.

Powers such as the US Armed Forces, Soviet Union Armed Forces, IJF, and European Union Forces mainly take part in the UN Forces this way. For example, the naval fleets of these nations need to be operated jointly, and so are incorporated into this form.

Secondly, there are forces that were dispatched from various countries to temporarily be incorporated into the UN Forces as semi-permanent forces.

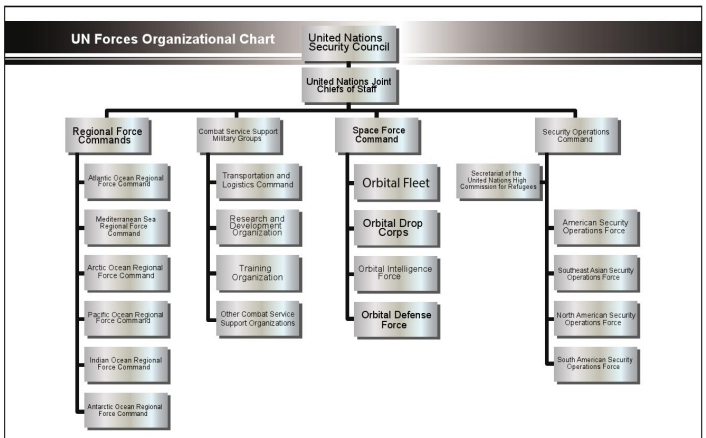
These forces still belong to their countries of origin, but the right to lead them belongs entirely to the UN Forces. Their equipment is generally provided by the home nation, and these forces use the UN Color on their equipment, and raise the UN flag when participating in operations.

Special forces, such as space forces or those stationed for extended periods of time on defense lines, and some forces that belong to the Alternative Program take on this form.

Finally, there are militaries of exiled nations that are completely under the control of the UN Security Council. By no stretch are they numerous, but they are strongly united, as they use the UN as a means to take back their homeland. Naturally, they participate in operations while bearing the UN colors, just as the dispatched forces do.

Due to their nature, they are seen by the UNSCS as more being easily deployable, and tend to be actively sent to the most dangerous fronts.

There are more than a few exiled nations that dislike this, and have only entered the UN with a degree of buffering from forming their own coalition forces, such as COSEAN.



Several countries across the globe have agreed to cooperate under Article 43 of Chapter 7 of the UN Charter, and are offering their troops to the UN Forces.

The Military Staff Committee is made up of representatives from nations that are permanent members of the security council. The Committee leads the UN Forces, and also advises the Security Council in military matters. Defense missions conducted by the UN use the Regional Forces that are assigned to defend their selected region. Regional Forces have an integrated composition, using a combination of the army, navy, and air force.

Support of these Regional Forces, such as transport and logistics, as well as research and training, are conducted by Combat Service Support military groups. Large-scale programs that transcend national borders, such as Project Prominence and the Alternative Plans, are conducted under the command of Research and Development organizations.

The Space Force Command consists not only of orbital fleets and orbital divers, but also includes orbital defense forces, which are responsible for the Strategic Defense Initiative, and orbital intelligence forces, which operate assets such as reconnaissance satellites.

The Security Operations Command is a support organization for the Secretariat of the United Nations High Commission for Refugees, and is in charge of maintaining public order in refugee residency zones.

However, countries such as the US, the UK, and Taiwan, which do not rely on UN Security Operations Forces, maintain public order with their own domestic forces.

UN Pacific 11th Force

UN Forces Yokohama Base



Paul Radhabinod | Kouzuki Yuuko | Jinguuji Marimo | Suzumiya Haruka

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name 1	Unit Name 2	Equipment	Position	Name	Rank
Yokohama Base	—	—	—	Base Commander	Paul Radhabinod	Brigadier General
				Base Executive Officer	Kouzuki Yuuko	-
				Operator	Irina Pyatkh	Lieutenant
				Instructor	Jinguuji Marimo	Sergeant
	Special Operations Unit A-01 Regiment	Isumi's Valkyries (9th Squadron)	Shiranui	Squadron Commander	Isumi Michiru	Captain
				Vice Commander	Hayase Mitsuki	Lieutenant
				CP	Suzumiya Haruka	Lieutenant
				—	Munakata Misae	Lieutenant
					Kazama Touko	2nd Lieutenant
		UN 207th Flight Cadets A Squad → Isumi's Valkyries	Fubuki→Shiranui	Element Commander	Suzumiya Akane	Cadet→ 2nd Lieutenant
				—	Kashiwagi Haruko	
					Tsukiji Tae	
					Asakura	
					Takahara	
		UN 207th Flight Cadets B Squad → Isumi's Valkyries	Fubuki→Shiranui→Takemikazuchi	Element Commander	Sakaki Chizuru	Cadet→ 2nd Lieutenant
				—	Mitsurugi Meiya	
					Yoroi Mikoto	
					Ayamine Kei	
					Tamase Miki	
			Fubuki→Shiranui→Susano-O Mk. IV	—	Shirogane Takeru	
		Isumi's Valkyries	Susano-O Mk. IV	—	Kagami Sumika	—
					Yashiro Kasumi	
		—	—	—	Narumi Takayuki	—
	1st-7th Armored Battalions	Hornet Squadron	Gekishin	—	—	—
		Sword Squadron				
		Cracker Squadron				
		Shark Squadron				
		Falcon Squadron				
		Gamble Squadron				
		Hermit Squadron				
		Tomahawk Squadron				
		Grizzly Squadron				
		Liger Squadron				
		Flame Squadorn				
		Lotus Squadron				
		Circus Squadron				
		Hawk Squadron	Kagerou			
		Dragon Squadron				
		Joker Squadron				
		Blizzard Squadron				

Alternative 4's Special Operations Unit

Valkyries

The Special Operations unit that belongs to Kouzuki Yuuko, director of Alternative 4.

This unit, A-01, is an abbreviation of VFA-01—the first tactical combat attack force of the Alternative Program. They are an unofficial but active force that has its own unique chain of command despite being part of the UN.
The attrition rate of their personnel is high, as extreme missions are always conducted in order to allow Kouzuki Yuuko's prepared operations to succeed. When it was first established, the unit was the size of a regiment, but as of 2001, it is only left with the lone Valkyries Squadron.

The callsign 'Valkyries' originates from the twelve valkyries that serve Odin in Norse mythology. This unit name came from the fact that the twelve Surface Pilots belonging to the squadron were all women, and it is also referred to as 'Isumi's Valkyrie's', which bears the commander's name. Narumi Takayuki, who was a classmate of Hayase Mitsuki and Suzumiya Haruka, belonged to a separate unit, but died in combat during Operation Lucifer, in 1999.
His cause of death or the specifics of his mission were not made public, but from the fact that Yokohama Base, which would become the headquarters for Alternative 4, was built on the ruins of Target 22 (the Yokohama Hive), it can be assumed that he played some kind of an important role in capturing the hive.

All of the personnel in A-01 are candidates for 00 Unit.
Because this fact is designated as top secret and confidential information, neither the personnel nor their families have been informed of this.
It has been determined that the candidate selected for 00 Unit would require a sensing ability that would allow them to select the best future. It is said that their missions with low survival rates, and their harsh training programs are experiments for 00 Unit.
It is likely that within the high rate of attrition, a considerable number of deaths can be attributed to experiments, rather than from actual combat.

Valkyries Emblem





Isumi Michiru　Shirogane Takeru



Hayase Mitsuki　Mitsurugi Meiya　Ayamine Kei　Sakaki Chizuru　Tamase Miki



Yoroi Mikoto　Munakata Misae　Kazama Touko　Suzumiya Akane　Kashiwagi Haruko

UN Pacific 3rd Force

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name	Equipment	Position	Name	Rank
Alaska Yukon Army Base	—	—	Base Commander	George Preston	Brigadier General
			Project Prominence Chief Executive	Klaus Haltwick	Colonel
			Soviet Army Central Strategic Development Corps Political Commissar	Vasiliy Atajev	Colonel
				Budomir Rogofsky	Lieutenant Colonel
			П3 Program Chief Manager	Igor Belyayev	—
			MP	Mike Ford	Major
			UN Force Informations Unit Spokesperson	Orson	Captain
	Argos Test Flight	(F-16 → F-15 ACTV)	Flight Commander	Ibrahim Dogulu	Lieutenant
		Takemikazuchi	XFJ Program Chief Developer	Takamura Yui	Lieutenant
		—	Technical Advisor	Frank Heinemann	—
		F-15E→Fubuki→Shiranui Type 2 XFJ-01a	Test Pilot	Yuuya Bridges	2nd Lieutenant
		F-15E→ F-15 ACTV→Shiranui Type 2 XFJ-01b	Test Pilot	Tarisa Manandal	2nd Lieutenant
		F-15E→F-15 ACTV	Test Pilot	Valerio Giacosa	2nd Lieutenant
				Stella Bremer	2nd Lieutenant
		—	Mechanic	Vincent Lowell	Sergeant
	Soviet Union Idar Test Flight	—	Flight Commander	Jerzy Sandek	Lieutenant
		Su-37UB	Test Pilot	Cryska Barchenowa	2nd Lieutenant
				Inia Sestina	2nd Lieutenant
	Third United Front Bao-Feng Test Flight	—	Flight Commander	Wu	Captain
		Jian Type 10	Test Pilot	Cui Yifei	Lieutenant
	COSEAN Garuda Test Flight	F-18E	—	—	—
	Middle East Coalition Azriel Test Flight	F-14Ex			
	African Coalition Duma Test Flight	Mirage 2000 Kai			
	Europe 1st Sleipner Test Flight	JAS-39			
	Europe 2nd Garm Test Flight	Tornado ADV			
	Eastern European Socialist Alliance Graf Test Flight	MiG-29OVT			
	Australia Test Flight	F-18			
	37th Facility Defense Unit Astraius	F-16C			
	11th Facility Defense Unit Phoenix	MiG-29			

■ Other important bases: UN Atlantic Ocean Region 4th Force West Indies - Guadeloupe Base| UN Arctic Ocean Region 6th Force Soviet Union Kamchatka Petropavlovsk-Kamchatsky Base

The UN Force's Advanced TSF Technology Development Program

Project Prominence

UN Forces Operational Test and Evaluation Command emblem



Advanced TSF Technology Program emblem



Stationed at Yukon Base, Alaska, the Advanced TSF Technology Development Program, commonly called 'Project Prominence' seeks to develop more powerful TSFs through technological cooperation and exchanging information between the world's nations, under UN leadership.

■Phoenix Initiative

A program that sought to upgrade the F-15 at a low cost by merely retrofitting its avionics and adding modules. The F-15 ACTV was created as a result of this program.

■XFJ Program

A Shiranui refurbishment program, conducted by the Empire of Japan with cooperation from the US corporation Boening. By incorporating US made parts onto several locations across the Shiranui Type 94-1C, the Shiranui Second was created.

Argos Test Flight



Takamura Yui　Ibrahim Dogulu　Yuuya Bridges　Vincent Lowell　Tarisa Manandal　Valerio Giacosa　Stella Bremer

Idar Test Flight



Cryska Barchenowa　Inia Sestina

Bao-Feng Test Flight



Cui Yifei

UN Indian Ocean Region 1st Force

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name	Equipment	Position	Name	Rank
Middle Andaman Island Austin Base	215th Tactical Armored Battallion	—	Refurbished Unit Testing Program Manager	Major Murai	Major
		F-5G	Test Pilot	Tarisa Mandandal	2nd Lieutenant
		F-4E	Test Pilot	Palus Amei	2nd Lieutenant

■ Other important bases: South Andaman Island - Camp Parsa | South Andaman Island - Port Blaire base

UN Mediterranean Sea Region 1st/3rd Force

Cerberus Battalion

Cerberus Coat of Arms


Wilfried von Eichberger


Ilfriede von Feulner


Helgarose von Falkenmayer


Lunateresia von Witzleben

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name	Equipment	Position	Name	Rank
UK - Kent, Dover Base	West German Army 44th Tactical Armored Battalion Cerberus	EF-2000	Battalion Commander	Wilfried von Eichberger	Major
			—	Sieglinde von Fahrenhorst	Lieutenant
				Ilfriede von Feulner	2nd Lieutenant
				Helgarose von Falkenmayer	
				Lunateresia von Witzleben	

UN Space Force Command

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name 1	Unit Name 2	Equipment	Position	Name
California Edwards Space Force Command Base	6th Orbital Drop Corps	Sauber Squadron	F-15C/F-15E	—	—
		Ghost Squadron			
		Razor Squadron			
		Aquila Squadron			
	3rd Fleet	2nd Squadron	HSST Yunagi	Captain	Ichimonji Takahashi
		5th Squadron	HSST Neustrashimy	—	—
			HSST Sawarabi		
			HSST Eilat		
			HSST Shiloh		
			HSST La Fayette		

UN Navy

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name	Equipment
Sasebo Base	UN Navy	Battleship Iowa
		Battleship New Jersey
		Battleship Missouri
		Battleship Illinois
		Battleship Kentucky

Uniform



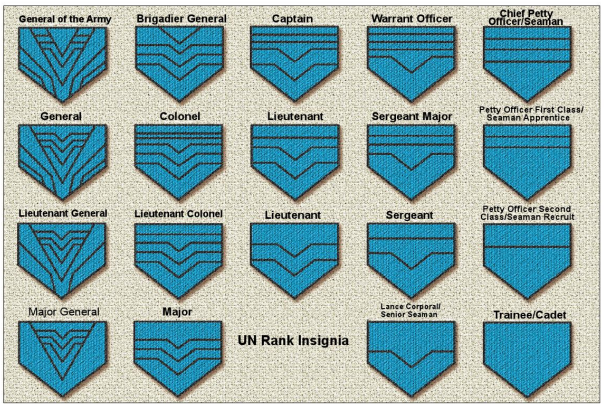
Wing Mark



Emblem (Unit Patch)

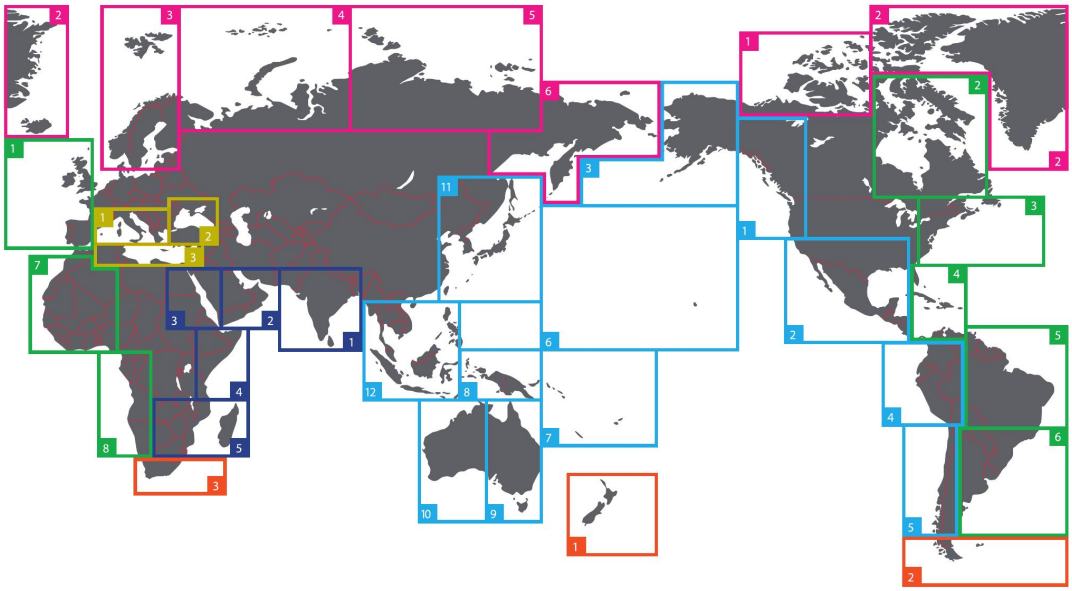


Emblem (Unit Patch)



UN Regional Force Deployment Diagram

The UN's regional forces are split into six zones, from the Atlantic to the Antarctic ocean commands. This diagram shows how the regional forces are deployed in such a way as to surround the Eurasian continent, which is BETA controlled territory.



Arctic Ocean Regional Force Command

1st Force: Canadian North Coast
2nd Force: Greenland Coast (Including Iceland)
3rd Force: Scandinavian Coast
4th Force: Soviet North-West Coast
5th Force: Soviet North-East Coast
6th Force: Far East Soviet Coast and Kamchatka Peninsula
☑Petropavlovsk-Kamchatsky Base

Atlantic Ocean Regional Force Command

1st Force: European West Coast (Including British Isles) ●Dover Base Group
2nd Force: Canadian East Coast
3rd Force: US North-East Coast
4th Force: Caribbean Sea ●Guadeloupe Base
5th Force: South American North-East Coast
6th Force: South American South-East Coast
7th Force: African North-West Coast
8th Force: African South-West Coast

Mediterranean Sea Regional Force Command

1st Force: European South Coast ●Messina Base
2nd Force: Black Sea Coast
3rd Force: African North Coast

Indian Ocean Regional Force Command

1st Force: Indian Coast (Includes Ceylon) ●Colombo Base
2nd Force: Persian Gulf Coast
3rd Force: Red Sea Coast
4th Force: African Central-East Coast
5th Force: African South-East Coast (Includes Madagascar)

Antarctic Ocean Regional Force Command

1st Force: New Zealand-Antarctic Region
2nd Force: South American-Antarctic Region
3rd Force: South African-Antarctic Region

Pacific Ocean Regional Force Command

1st Force: North American West Coast ●Vancouver Base
2nd Force: Mexican and Central American West Coast
3rd Force: Alaska & Aleutian Islands ●Yukon base
4th Force: South American North-West Coast
5th Force: South American South-West Coast
6th Force: Central Pacific Ocean Region (Includes Hawaii)
7th Force: East Oceanic Region
8th Force: West Oceanic Region
9th Force: Australian East Coast
10th Force: Australian West coast
11th Force: North-Eastern Asian Coast (Includes Japan)
●Yokohama Base ●Kadena Base ●Iwakuni Base
●Misawa Base ●Chitose Base
12th Force: Southeast Asia Coastal Regions
●Singapore Base ●Borneo Base ●Clark Base



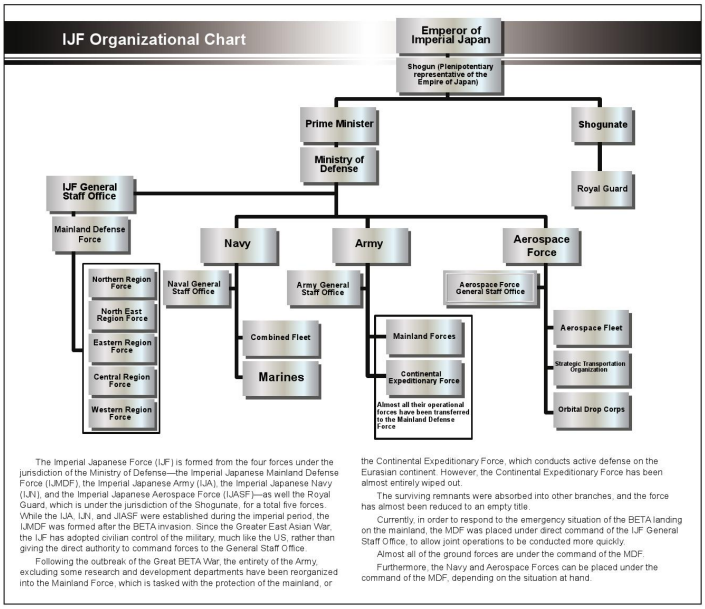
IJF

The Empire of Japan has been a loyal ally of the US since the end of the Pacific War in 1944, and took on the role of a Western Bloc bridgehead for America's Far East strategy. Japan has continued to serve this role even after the outbreak of the Great BETA War, and continues to play a part in the anti-BETA Far East defense line of Eurasia.

Although exhausted by repeated and intense combat with the BETA invasion of its mainland in 1998, as well as the retaking of the mainland the following year, Japan is still an influential nation, on the level of the Soviet Union and the UK.

As of 2001, the IJF comprises five forces: the traditional Army and Navy, as well as the Aerospace Force, Mainland Defense Force, and Royal Guard.

Out of these, the Mainland Defense Force and the Royal Guard are military organizations unique to the Empire of Japan, and they strongly reflect the circumstances of Japan, as well as its strategic doctrine.



The Imperial Japanese Force (IJF) is formed from the four forces under the jurisdiction of the Ministry of Defense—the Imperial Japanese Mainland Defense Force (IJMDF), the Imperial Japanese Army (IJA), the Imperial Japanese Navy (IJN), and the Imperial Japanese Aerospace Force (IJASF)—as well the Royal Guard, which is under the jurisdiction of the Shogunate, for a total five forces. While the IJA, IJN, and JIASF were established during the imperial period, the IJMDF was formed after the BETA invasion. Since the Greater East Asian War, the IJF has adopted civilian control of the military, much like the US, rather than giving the direct authority to command forces to the General Staff Office.

Following the outbreak of the Great BETA War, the entirety of the Army, excluding some research and development departments have been reorganized into the Mainland Force, which is tasked with the protection of the mainland, or the Continental Expeditionary Force, which conducts active defense on the Eurasian continent. However, the Continental Expeditionary Force has been almost entirely wiped out.

The surviving remnants were absorbed into other branches, and the force has almost been reduced to an empty title.

Currently, in order to respond to the emergency situation of the BETA landing on the mainland, the MDF was placed under direct command of the IJF General Staff Office, to allow joint operations to be conducted more quickly.

Almost all of the ground forces are under the command of the MDF.

Furthermore, the Navy and Aerospace Forces can be placed under the command of the MDF, depending on the situation at hand.

Mainland Defense Force/Army

As the name suggests, the Mainland Defense Force (MDF) is primarily tasked with defending the Japanese mainland.

The Mainland Defense Force is placed under the direct control of the IJF's General Staff Office, which is a strategic command system that oversees the Army General Staff Office, Naval General Staff, and the Aerospace Force General Staff Office. The MDF does not have proper forces of its own, aside from a few tactical armored forces, and they operate much like a task force with a unified command, by extracting forces from each military branch in response to the mission at hand.

On the other hand, the Army has treated the overseas Eurasian continent as its main area, and had conducted several missions such as culling operations with the UN Forces and forces of other nations. However, due to the losses incurred in China between 1991 and 1998, and the following mainland defense, the Army's command functions have been almost entirely transferred to the MDF.

The 'Divisions' that are represented by the Imperial Capital Defense First Division are actually forces that belong to the Army that have been directly transferred to the Mainland Defense Force, and the name 'Imperial Capital Defense' has the nuance of a title of honor.

Navy

The IJN is the world's third largest armed force, behind the US and the UK, and is the largest navy in the Far East.

In particular, the First Fleet of the Combined Fleet is said to be the strongest battleship force in the world, which can even outclass the US Navy's Montana and Iowa Classes. The First Fleet embraces the largest and final battleship class in the world, Kii, as well as the high-speed battleship group Yamato, which received large-scale refurbishments after the end of the Pacific War.

Other than combat vessels such as battleships, the IJN has constructed several other vessels such as the Miura-class medium TSF carrier, which is a remodeled large tanker, as well as landing support vessels. They also possess amphibious battleship fleets that allow ground forces to land on coastal areas in the Far East.

As of 2001, the IJN have placed their main fleet forces in the Sea of Japan and the East China Sea, and they are supporting the Kyushu front line, which is facing sporadic BETA invasions.

Aerospace Force

In the Empire of Japan, much like in many other nations, the air force has been integrated and absorbed into the aerospace force.

The backbone of the aerospace force consists of reentry destroyers supplied from the US, and they also have the ability to operate orbital drop corps.

Other than this, they have many sweeper ships used to remove space debris from the low orbit path, and small repair ships used for constructing large orbital stations. A notable characteristic of this space force is that its composition focuses not only on raw combat abilities, but also those of support.

IJA

Cracker Flight



Isumi Akira

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name 1	Unit Name 2	Equipment	Position	Name	Rank
Ministry of Defence	—	—	—	1st Arsenal Development Authority Vice Director	Iwaya Eiji	Lieutenant Colonel
Fuji 1st Base	Fuji Tactical Fighter Training Group	—	Shiranui	—	—	—
Akeno Base	—	Cracker Flight	Gekishin	—	Isumi Akira	2nd Lieutenant

Imperial Mainland Defence Force

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name 1	Unit Name 2	Equipment	Position	Name	Rank
Camp Asaka	Capital Guard Regiment 1st Division	First Tactical Armored Regiment	Shiranui	—	Sagiri Naoya	Captain
Atsugi Base	671 Air Transport Unit	—	An-225 Mriya	—	—	—
	404th Tactical Armored Battalion	—	—	—	—	—

IJN

IJN Combined Fleet



Captain Ozawa | Captain Abe | Captain Tadokoro | Captain Iguchi

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name 1	Unit Name 2	Equipment	Position	Name	Rank
Maizuru Base	IJN Combined Fleet	Operation 21st HQ	Large cruiser Mogami	Captain	Ozawa	—
		2nd Squadron	Battleship Shinano	Captain	Abe	
			Battleship Mino	—	—	
			Battleship Kaga			
		3rd Squadron	Battleship Yamato	Captain	Tadokoro	
			Battleship Musashi	Captain	Iguchi	
Yokosuka Base	IJN Combined Fleet	1st Squadron	Battleship Kii	—	—	
			Battleship Owari			
			Battleship Izumo			
Kure Base	18th Tactical Armored Battalion	Stingray Squadron	Wadatsumi			
		Salamander Squadron				
Sasebo Base	IJN Combined Fleet	2nd Tactical Mobile Fleet	TSF Carrier Shimokita			



Imperial Royal Guard

The Royal Guard is an independent, armed organization that is responsible for the protection of the Shogun and their family, and the relatives of the Five Regent Houses. They are under the jurisdiction of the Shogunate.

Therefore, they are under a chain of command completely independent from the four other forces, which are under the command of the IJF General Staff Office. However, cooperation between these two chains is constantly maintained by actions such as organizing their forces under each other's command, depending on the situation.

The scale of their combat capabilities is extremely small compared to the other four forces. As of 2001, the Royal Guard has the combat capability equivalent to two divisions and four regiments. These consist of three regiments, the 1st, 2nd, and 24th, as well as the Independent Guard Flights, which serve directly under the Five Regents.

They procure their own unique equipment, as per tradition, and the Type 82 Zuikaku and the Type 00 Takemikazuchi are the exclusive TSFs piloted by the Royal Guard.

The Takemikazuchi was formalized as the replacement of the Zuikaku, but as there is a limit of approximately 30 per annum that can be produced, they are deployed only to very few forces, such as the Independent Guard Flights of each Regent House, and the 16th Group, which is considered the most elite of all the Royal Guards.

Imperial Royal Guard 16th Group

The Imperial Royal Guard 16th Group was the first group to have received a focused deployment of the Type 00 Takemikazuchi, other than the guard flights of the Shogun and the Five Regent Houses.

This group consists of Surface Pilots, carefully picked from the already elite Royal Guard, and their role is as an instructor group for the Royal Guard.

In 1998 at the Defense of Kyoto, this group served as the rear guard until the other Royal Guard groups had withdrawn. They were practically wiped out, with only eight craft surviving by the end. However, by extracting Surface Pilots from the 1st and 2nd regiments of the Imperial Royal Guard, which had been worn down in the same way, the 16th Group was able to be reorganized as a unit that would utilize Royal Guard exclusive craft that were to be deployed in 2000.

The 16th Royal Guard Group had amassed enough numbers by the start of 2001, and were placed in the Imperial Capital, alongside the Imperial Royal Guard 2nd group, which protected the Shogun. During the 12-5 Incident, they guarded the castle without yielding an inch, even when faced with the forces of the uprising, which had surrounding the castle.

During Operation 21st, they added the 19th Independent Guard Flight, which was the guard unit for the Koubuin House, under their command, and took part as the reserves for Whiskey Unit, which was mainly composed of the IJF.

They gave a remarkable performance, appropriate for their title of the 'The Elites of the Imperial Royal Guard', through actions such as rescuing the IJF 133rd regiment from a tight spot, and protecting the rear after the withdrawal of other units began.

The only forces other than the 16th Group to have been supplied with the Takemikazuchi are the Independent Guard Flights, which are the guards for the Shogun and the Five Regent Houses, and the 'White Fangs' central evaluation and trial squadron, which conducts development and operational trials for new weapons in the Royal Guard. In regards to the 1st and 2nd regiments of the Royal Guard, which are organized in a standard format, they are planned to continue to use the Type 82 Zuikaku until the procurement of the Takemikazuchi gets off the ground.

Imperial Royal Guard

19th Independent Guard Flight



Tsukuyomi Mana　Kamiyo Tatsumi　Tomoe Yukino　Ebisu Minagi

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name	Equipment	Position	Name	Rank
Camp Kitanomaru	Royal Guard 16th Group (During Operation 21st)	Takemikazuchi	Battalion Commander	Ikaruga	—
			—	Tsukuyomi Mana	Lieutenant
				Kamiyo Tatsumi	2nd Lieutenant
				Tomoe Yukino	
				Ebisu Minagi	
Yokohama Base	19th Independent Guard Flight (During the 12-5 Incident)	Takemikazuchi	Flight Commander	Tsukuyomi Mana	Lieutenant
			—	Kamiyo Tatsumi	2nd Lieutenant
				Tomoe Yukino	
				Ebisu Minagi	
Chofu Base	White Fangs Squadron	Takemikazuchi, Shiranui Type 94-1C	Squadron Commander	Takamura Yui	Lieutenant
		Shiranui	—	Amemiya	Lieutenant

Uniform



US Armed Forces

As of 2001, the US boasts the largest military force in the world owned by a single nation. After World War II, the US Armed Forces have played a significant role in several regional conflicts such as those in Korea, Vietnam, and Taiwan. They continue to expand even after the commencement of the Great BETA War, and its composition includes six forces, with the existing Army, Navy, Air Force, Marines, and Coast Guard alongside the Space Command, which was established in 1946.

Since the BETA invasion of Earth, the US Armed Forces have not exposed their mainland to the war, excluding the interception of the BETA landing unit in Athabasca. They have since used their stable and massive national power to dispatch forces to the European and Far Eastern fronts, and they act as the main force for humanity's defense.

Furthermore, they are peerless in the development of the anti-BETA weapons, with the most notable being the TSF. The US and the North American continent as a whole are called the 'Arsenal of Humanity', with a hint of both praise and irony. (★ 1)

US Army

Of the six military branches, the Army is the largest and acts as the main force in anti-BETA combat. Approximately 70% of US-owned TSFs belong to the Army, and they are the largest and most powerful TSF group in the world, in both name and practice. This is because of their high proficiency from their generous average annual training hours, the stable capabilities of 2nd-generation TSFs such as the F-15 and F-16 that make up the bulk of the main force, and how the cutting-edge weapons such as the 3rd-generation F-22 are on a level of their own.

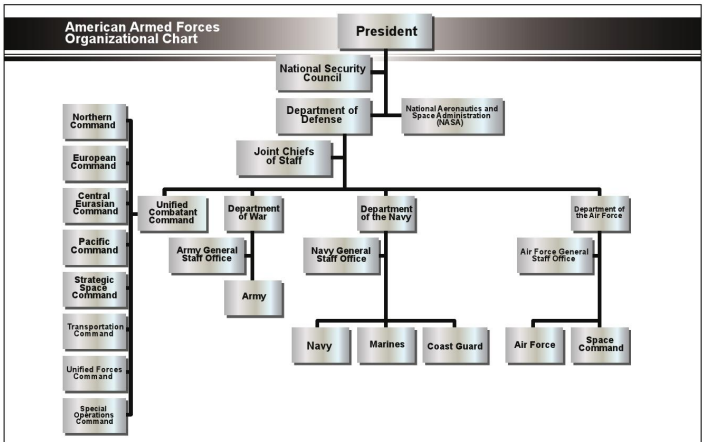
US Navy/US Marine Corps (USN/USMC)

Despite large budget cuts following the outbreak of the Great BETA War, the US Navy still remains the world's strongest, with their backbone consisting of main fleets of battleships, aircraft carriers, and the Nimitz-class superlarge TSF carriers, as well as naval TSF forces.

The Marines and Coast Guard, which are strongly related to the Navy, have not seen much change compared to before the outbreak of the war with the BETA. In the US however, the A-6 Intruder and A-10A Thunderbolt II TSAs are unique to the Marines, due to the specialized nature of their missions.

US Air Force (USAF)

One thing to take note of about the US military is that its Air Force has remained intact even after the outbreak of the Great BETA War, while most other countries have disbanded theirs.



The US Military houses three departments: The Department of War, The Department of the Navy, and The Department of the Air Force, which are all under the US Department of Defense.

The Department of War has jurisdiction over the Army, the Department of the Navy has jurisdiction over the Navy, Marines, and Coast Guard, and the Department of the Air Force has jurisdiction over the Air Force and Space Command.

The Coast Guard was originally governed by the Department of Transportation, but as they are placed under the command of the Department of the Navy during times of war, they have consistently been under their command since the beginning of the Great BETA War.

The US Military's Supreme Commander is the President, who is a civilian. On the other hand, the Joint Chiefs of Staff's Commander-in-Chief, the highest ranking person in the US Military, has no authority for direct command. Rather, their role is to instead draft military plans and advise people such as the President and those in the National Security Council.

Furthermore, the three aforementioned departments of War, the Navy, and the Air Force also do not possess the authority of direct command.

These departments are groups made for tasks such as administration and training of forces, as well as weapons research and development. They also lend forces to the unified combatant command when necessary, and the commander of this unified combatant command directs all of these forces.

By adopting this method, it is possible to smoothly deploy joint operations between the Army, Air Force, and Navy.

Areas for which the US Unified Combatant Command is Responsible

- Northern Command: North American continent (US Mainland/Canada/Mexico)
- European Command: Europe
- Central Eurasian Command: Middle East/Central Asia
- Pacific Command: Pacific Ocean/Far East
- Strategic Space Command: Extra-terrestrial defense through nuclear weapons and G-Bombs strategy, space fleets, artificial satellites, and the SDI.
- Transportation Command: US Military transportation strategy for the entire Earth
- Unified Forces Command: Responsible for training, research, and development of joint operations
- Special Operations Command: Mainly conducts terrorism deterrence activities within and outside of the US, and is responsible for the training and operation of special forces.

Other than the US Mainland Defense Air Unit and the transportation units, which are required for dispatching troops overseas, they have also kept strategic bombing forces, with over 200 aircraft. As a whole, the US Air Force conducts strategic patrol missions in South America where there is political instability.

The US Space Command (USSC)

The Space Command is only second to the Army in terms of personnel and budget. The core of the space forces is the HSST fleet and an ICBM force of over 160 armored destroyers. These are used to conduct joint operations with four tactical armored divisions (Orbital Divers), selected from the Army as strategic orbital forces.

Their main missions involve strategic reconnaissance, orbital drops, orbital bombardments, and the interception of Original Hive landing units with cooperation from the UN Space Force Command.

(★ 1) A sarcastic remark that 'Eurasia is the firing range of the US' is paired with this.

US Army

66 Tactical Armored Battalion

65th Combat Training Battalion Infinities



Alfred Walken | Irma Thesleff | Leon Kuze | Sharon Heim

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name 1	Unit Name 2	Equipment	Position	Name	Rank
Guam Territory Anderson Base	66th Tactical Armored Battalion	Hunter Squadron	F-22A	Battalion Commander	Alfred Walken	Major
				—	Irma Thesleff	2nd Lieutenant
		Spike Squadron			—	—
	174th Tactical Armored Battalion	Heat Squadron	F-15E	—	—	—
Nevada Nellis Army Base	65th Combat Training Battalion	Infinities	F-22A EMD Phase	Flight Commander	Keith Blazer	Lieutenant
				—	Leon Kuze	2nd Lieutenant
					Sharon Heim	
					Guylos McCloud	
		Flankers	F-15E	F-15E	Gregg	Captain

US Navy

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name 1	Unit Name 2	Equipment
Guam Territory Apra Naval Base	7th Fleet	70th Task Force	TSF Carrier Theodore Roosevelt
	103rd TSF Combat Unit	Jolly Rogers	F-14D、F-14E

Uniform





Soviet Union Armed Forces

Currently, the Soviet Union government, which was once a power on par with the US, has evacuated their central systems to leased land in the US territory of Alaska. They are focusing their remaining forces in areas such as the Chukchi Peninsula, the Kamchatka Peninsula, and Wrangel Island.

During the initial stages of the Great BETA War, the Soviet Union government had adopted a fascist-like reign of terror as their domestic policy, and were prioritizing the deployment of races other than ethnic Russians to the front lines.

However, the fear of combat with the BETA greatly surpassed the enforced fear of the Soviet Union government, and this brought the chain of command of the Soviet Armed Forces on the front lines to the brink of collapse.

In response to this, the senior officials of the Soviet Union adopted a new leadership policy. This policy, to become a socialist state, would take advantage of the ethnic problem, which was viewed as a taboo inside the Soviet Union.

They would segregate newborn children, based on race, into military educational facilities, and would then drill combat training and wartime education into them.

Although being severed from a family would bear a significant negative influence on the child's development, the government sought to direct these children's latent desire for familial affection, which develops naturally as they age, towards their own ethnic group.

Furthermore, the lax ethical standards of the Soviet Union compared to the West has granted them superior clinical psychological data from battlefields. This, combined with the idea that that comrades-in-arms are the most powerful motive for soldiers to fight, has allowed them to successfully plant a strong will for these segregated groups to continue fighting, by having them recognize that their 'comrades-in-arms' are their 'family'.

This new policy has also resulted in the composition of forces being changed, and as of now, forces are organized along ethnic lines.

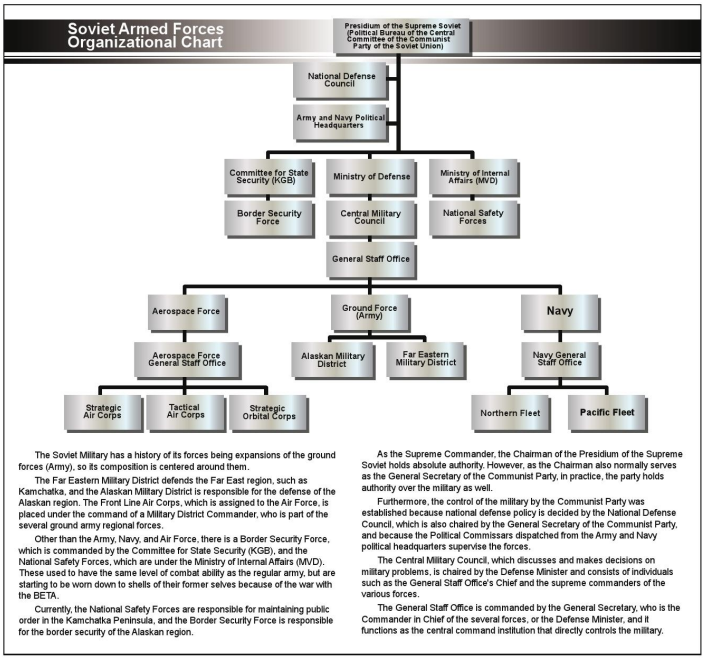
Ground Force (Army)

Of all the world's armed forces, the Soviet Army has the most experience in anti-BETA combat. As the Soviet Union keeps hive capturing in mind, many of its TSFs have strengthened close-quarters dogfighting abilities.

They accelerate their TSF development by having the Sufoni and MiG Design Bureaus compete, and the results of this have been proven by the Soviet Union being the world's second largest exporter of TSFs, in spite of having lost most of their territory.

They have also developed several surface weapons other than the TSF, including their main battle tank, the T-80UM-1, which has been exported to several countries.

Within the Army, there is the Central Strategic Development Corps, which is an organization that conducts development centered around military technology.



The Soviet Military has a history of its forces being expansions of the ground forces (Army), so its composition is centered around them.

The Far Eastern Military District defends the Far East region, such as Kamchatka, and the Alaskan Military District is responsible for the defense of the Alaskan region. The Front Line Air Corps, which is assigned to the Air Force, is placed under the command of a Military District Commander, who is part of the several ground army regional forces.

Other than the Army, Navy, and Air Force, there is a Border Security Force, which is commanded by the Committee for State Security (KGB), and the National Safety Forces, which are under the Ministry of Internal Affairs (MVD). These used to have the same level of combat ability as the regular army, but are starting to be worn down to shells of their former selves because of the war with the BETA.

Currently, the National Safety Forces are responsible for maintaining public order in the Kamchatka Peninsula, and the Border Security Force is responsible for the border security of the Alaskan region.

As the Supreme Commander, the Chairman of the Presidium of the Supreme Soviet holds absolute authority. However, as the Chairman also normally serves as the General Secretary of the Communist Party, in practice, the party holds authority over the military as well.

Furthermore, the control of the military by the Communist Party was established because national defense policy is decided by the National Defense Council, which is also chaired by the General Secretary of the Communist Party, and because the Political Commissars dispatched from the Army and Navy political headquarters supervise the forces.

The Central Military Council, which discusses and makes decisions on military problems, is chaired by the Defense Minister and consists of individuals such as the General Staff Office's Chief and the supreme commanders of the various forces.

The General Staff Office is commanded by the General Secretary, who is the Commander in Chief of the several forces, or the Defense Minister, and it functions as the central command institution that directly controls the military.

Space Force

The Soviet Union's space technology gained from the development race with the US are some of the best in the world. In terms of just the raw numbers of armored destroyer fleets, they are second only to the US. However, as the current Soviet Armed Forces are taking an extremely Army-focused doctrine, there are very few space forces of theirs that still maintain an operational state.

Once orbital drop tactics were established, the Soviet Space Forces reached a level of holding orbital drop forces as a hive capturing force. However, these are not on the scale of the US Armed Forces, and most are deployed to defense lines in the Far East.

Much like with the Space Forces, the Soviet Union's Air Force was second only to the US during the Cold War era. However, at one stage, the Air Force was practically in a non-existent state, after the significant losses in the early stages of the war with the BETA, and because many of the pilots that were deemed unneeded were transferred to roles such as Surface Pilots for the Army.

Later, in the 1980's, the Front Line Air Corps was reorganized as part of the Space Forces, and aircraft and helicopters with anti-surface offensive capabilities were transferred to this unit. In practice, operation of these air corps are conducted under Ground Force jurisdiction.

Navy

A characteristic of the Soviet Navy is that, when compared to other navies like the US, they have many battleships and few aircraft carriers. Their navy includes the Sovetsky Soyuz-class battleships as the main fleet, with Sovetskaya Belorussiya as a lead ship.

They also possess several Typhoon-class nuclear-powered submarines, but the exact number of these has not been publicly disclosed. These nuclear submarines are also used in missions to carry resources to the Mediterranean coastal areas, which are difficult to supply, and are hence slowing down the decline in presence of the Soviet Union in Europe.

Furthermore, in the Far East, they have conducted operations such as culls towards the Evensk, Cheorwon, and Sadogashima Hives, in collaboration with the IJN.

Far East Soviet Union Army

Notable Forces - Equipment - Individuals that appeared in the series

Base	Unit Name	Equipment	Position	Name	Rank
Kamchatka Koryaksky Autonomous Region Milkovsky District u-04 Front Line Supply Base	—	—	Base Commander	Gueorgui Barakin	Major General
	—	—	Guard	Orlov	Sergeant
	3rd Army, 18th Division 211th Tactical Armored Battalion Zhar Battalion	Su-37M2	Battalion Commander	Fikatsia Latrova	Lieutenant Colonel
		Su-37M2	Squadron Commander	Nastassja Ivanova	Captain
		—	—	Kira	—
		—	—	Tonya	—
	Zhelezo Squadron	Su-27SM	—	Nina Jughashvili	2nd Lieutenant
		Su-27SM	—	Marida	—

3rd Army, 18th Division 211th Tactical Armored Battalion 'Zhar Battalion'



Fikatsia Latrova

Nastassja Ivanova

Uniform



Soviet Union Army Emblem



Soviet Union Army Wing Mark







European Union

In 1972, there seemed to be no end in sight to the anti-BETA war on the lunar surface. It was at this time that the European Community (EC), which was an economic association, sought closer political and military cooperation. This led to it being expanded into the European Union (EU).

However, the military aspects did not change with this, and though some parts were reorganized, they were generally facing the war with the BETA using the North Atlantic Treaty Organization (NATO) forces, which included non-European nations such as the US, as their main force.

However, after the failure of Operation Palaiologos to capture the Minsk Hive in 1978, the major offensive of the BETA commenced, placing the European front in a hopeless defense.

Faced with this situation, the European Defence Agency, which serves to defend the EU member states, was established with cooperation from the NATO forces.

Soon afterwards, the presence of the Soviet government would decline in Europe following their relocation to Alaska, and involvement of the US in the defense of Europe started to shift towards being conducted through the UN Forces. This resulted in the authority to command the European Union Forces, which are part of NATO, being transferred from the US to the European Union. By 1980, these forces have also expanded to become the EU Force.

Later, Eastern European countries (Eastern European Socialist Alliance) that had lost their territory, as well as non-EU member states such as Switzerland would be incorporated into it, turning it into a single, large joint force, which in name and in practice would take on the defense of Europe as a whole.

However, even while this framework was being strengthened, the BETA invasion did not halt, and by the end of the 1980's, even France and the Iberian Peninsula had fallen. With this, a majority of the EU member states would be left without territory.

Since 1985, the creation of a framework for a joint command was sped up during the defense of the British mainland. However, this put the EU in an extremely difficult position of leadership as a collection of frontline nations that had to balance the interests of each country, such as securing land to evacuate to, maintaining production bases, and collaborative developments of TSFs suited to the European front.

On the other hand, the fact that the EU has consistently held authority over everything from politics to military, rather than NATO forces, was of great benefit to making progress on these goals, and it is said that this allowed the EU to keep the damages resulting from a loss of territory to a minimum.

As of 2001, the EU and the Joint Forces are both led by the UK. They succeeded in defending their territory, even though London was reduced to rubble during the defense of the mainland, and a majority of England was turned into a wasteland. The UK still maintains its national strength, and is only just behind the US, Soviets, and Japanese.

The main power of the EU Force is centered around the British Armed Forces and the militaries of old West European powers that were able to secure a certain degree of leased land and production bases, such as the armed forces of France, West Germany, Italy, and Spain. These forces are supported by the militaries of numerous other nations, with varied combat abilities, looking to take back the European continent. Such countries include: the Scandinavian countries, which boast their own unique TSF technology, Switzerland and its Mountain Combat Forces, which were active during the defense of the Alps, and the Turkish Army, which has a strong connection to Middle East Coalition.

This EU Force has established forward bases on several islands in the Mediterranean and the North Sea, in order to defend the British mainland, the African continent, and the large islands in the Mediterranean Sea. They are maintaining this extremely long front, which wraps around the European continent.

No matter how much land is available for the nations to withdraw to, the impact of Europe's fall has been significant, and so the EU is always in a state where they lack the forces to deploy across the lengthy front. The fact that the front would not be held up without asking for assistance from the UN, or even the US Armed Forces and the Empire of Japan, is something that weighs heavily on the European Union, the supposed leaders of Europe.



EU Force emblem

Middle East Coalition

Soon after the failure of the Sino-Soviet coalition in suppressing the Kashgar Hive, the Middle Eastern countries were consumed by the overwhelming, westward advance of the BETA.

Of all the Eurasian countries, they were the ones faced with the most immediate threat of losing their territory. They quickly overcame their differences in religion and gathered in the name of God.

At the start of 1978, the leaders of each nation agreed on a wartime cooperative stance, and formed the First Anti-BETA Jihad, which would later develop into the Middle East Coalition Force. They then declared a holy war and started a counteroffensive. However, during the 1970's, humanity as a whole, let alone the Middle East, had not yet developed effective anti-BETA tactics. On top of this, the First Anti-BETA Jihad fought only with old-fashioned and outdated equipment. They could not properly combat the BETA, which eventually completely overwhelmed them with numbers.

Three nations can be attributed with rescuing the front line from collapsing on all sides, despite the absolute disadvantage against the BETA. These were the United Arab Emirates (UAE), Saudi Arabia, and the Empire of Iran, which takes pride in being the foremost military power of the Middle East. As these three pro-US countries had been prioritized to receive the F-4 TSF, a cutting-edge anti-BETA weapon, they avoided the destruction of their nations' own forces.

The Arab countries that recognized this situation threw out their own ideologies and began desperately importing groups of TSFs.

In particular, the oil producing nations used the massive profits from oil exports to purchase the F-4s and F-5s that were intended either for US deployment or for export to nations other than themselves.

The US, wanting long lasting support from the region, responded to the demands of anti-US nations without prejudice. However, this move earned the ire of Saudi Arabia and Iran, which had lost their highly-placed priority as allies and their prestige.

The US government recognized this as a serious situation and quickly allowed 2nd-generation craft to be exported, despite only having just been deployed within its own military. They gave F-14s to Iran and F-15s to Saudi Arabia and the UAE in an attempt to reduce mounting tensions.

Since then, the Middle East Coalition Force, which boasted large-scale tactical armored forces, conducted fierce battles on the coasts of the Arabian Sea and Indian Ocean while withdrawing. However, in 1984, they decided to abandon the Arabian Peninsula after the Anbar Hive was constructed in Iraq.

After this, the Middle East Coalition Force was incorporated into the UN Forces, and they have taken on the mission of defending the African continent, as the main force of the Suez absolute defense line.

Eastern European Socialist Alliance

This alliance has formed a coalition force by rallying the remaining forces of formerly established East European countries. In practice, it is led by East Germany.

However, the forces owned by the alliance are extremely limited, as the region was one of the first to receive a direct attack from the BETA, and they are not at a level where they can conduct proactive military activities. Currently, they offer their personnel to the European Union Forces and are mainly active as part of this force.

As the alliance mainly comprises landlocked nations, their forces are mostly composed of ground assets, with only limited amounts of sea and air power. Although they have inherited the Soviet formula for everything from individual equipment to TSFs and even tactical doctrine, Western technology has started to trickle down into these nations, following the military exchanges between East and West Germany.

Third United Front

This is a military based on the anti-BETA alliance tied between China and Taiwan, forming the Third United Front in 1986.

With their air power neutralized by the sudden appearance of the Laser class, the Chinese Army, hoping to independently recover the BETA landing unit that settled in Kashgar, had their offensive strategy collapse in an instant. What followed was a hopeless series of retreats that even dragged in their ally, the Soviet Union.

The human wave tactics that the Chinese excelled at were easily consumed by the overwhelming numbers and incredible combat capabilities of the BETA, and it was impossible to halt the invasion, even with scorched-earth tactics using tactical nuclear weapons.

From the defeat at Kashgar until the latter half of the 80's, China had deployed a defense line in cooperation with the Soviet Union forces. However, when the Soviet Union government relocated their key functions to Alaska, after repeated defeats in Siberia, the Chinese and Soviets maintained their alliance, but the Soviets were forced to withdraw from Chinese territory.

As it was impossible for China to defend its territory alone, the Taiwanese government, with its economic and military strength, emerged as a new ally, despite being previously thought to be incompatible with the Chinese government.

Although the realization of the Third United Front was thought to be difficult, it would be finally established through repeated negotiations, resulting in a military alliance that sought to provide economic support and cooperation in anti-BETA combat.

The establishment of this alliance was a historical moment, much like the US-Soviet compromise regarding the lease of Alaska. The fact that Eastern and Western nations had overcome racial antagonism and their mutual strife in order to eliminate the BETA, a common enemy of all humanity, drew significant global attention.

But even so, the historical tensions up to that point could not be overcome in a single day. It ended up actually revealing the difficulty in uniting mankind, even when faced with the BETA. This was due to the problems of conducting joint operations between each force, which resulted from the great differences between the two parties, such as those in military doctrines, weapon systems, and the economic systems supporting them.

Coalition of Southeast Asian Nations

This is a multinational force formed by the Southeast Asian nations that refused to be placed directly under UN command. It later developed into a political alliance.

One of the most notable circumstances to influence its formation was how the UN-led Operation Swaraj, forcefully conducted in 1992 while ignoring the Indian government's intentions, resulted in heightened distrust towards the UN.

As of 2001, they are still maintaining their territory. Nations such as Indonesia and Malaysia, which are receiving support from the Empire of Japan, are the backbone of the coalition. The Philippines, which is strongly influenced from the US and Taiwan, is not part of it.

Due to factors such as historical reasons and geographical conditions, COSEAN has secured a military alliance with the Empire of Japan, and also has deep ties with the Australian military.

Furthermore, though there are political tensions, they are conducting combined operations with the Third United Front.

The TSFs they equip mostly consist of F-4 and F-5 series craft, and the latter half of the 1990's saw 2nd-generation craft such as the F-16 and F-18 finally begin to see deployment in small numbers.

Some of the nations that were part of the former Eastern Bloc have imported Soviet craft, but with problems in maintainability, these are only in a trial import stage.

Australian Military

Australia is surrounded by ocean and is in a position that is least likely to face a direct BETA threat in the eastern hemisphere. However, the Australian Defence Force is not overconfident in this geographic advantage, and readily accept support from the UK and US to rapidly bolster their tactical armored forces, which are a source of international influence, to accompany their rapidly expanding economy.

As of 2001, the TSFs deployed by the Australian Defence Force are mainly watered-down kits of US-made TSFs.

They mainly use the F-18 Hornet and are proceeding with the deployment of the F-18E/F Super Hornet, but are also looking into license producing the EF-2000 Typhoon and importing the F-35 Lightning II as part of a plan to import even higher specification 3rd-generation craft.

The Australian Defence Force currently has a combat ability equivalent to four tactical armored divisions, and of these, one regiment has been sent to the UN Pacific Region Force.

Furthermore, during the Defence of the British Mainland, they responded to requests from the UK by dispatching tactical armored divisions of several hundreds of Surface Pilots to the European Union Force.

The Navy is primarily tasked with the coastal defense of Australian territory and islands in the Pacific. However, due to the effectiveness of naval forces in anti-BETA combat, they are organizing a naval tactical task force expected to be deployed to the Southeast Asian region.

They do not currently possess space forces capable of combat deployment, but their technological developments are advancing rapidly by actively accepting engineers and scientists as refugees from several countries across the globe. They are currently conducting experiments aimed towards establishing a space force.

African Union

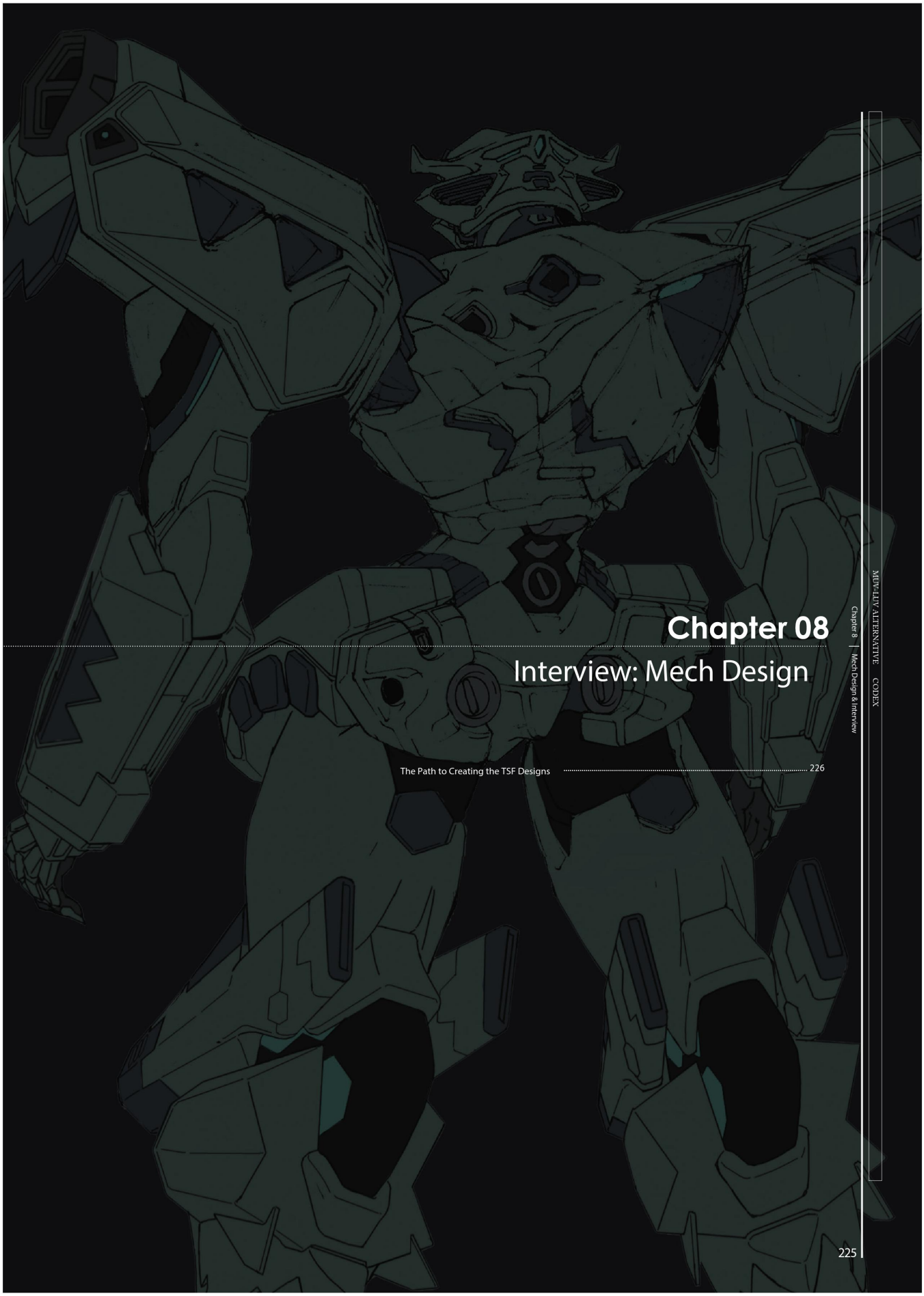
The African Union was established by expanding the Organization of African Unity (OAU), which existed prior to the Great BETA War, into a closer military alliance.

It is said that it was formed in response to the heightened pressure along the Suez front and the Mediterranean Sea coastal defense line, which are necessary for the defense of the African continent. However, the Suez front is mainly formed by the independent Egyptian Army, the Middle Eastern Coalition, and the EU Forces, and even the naval powers along the Mediterranean Sea coast belong to EU Forces such as the Italian Navy. Furthermore, Morocco defends the Gibraltar Strait, with close collaboration with the Spanish military, while Algeria and Tunisia are closely collaborating with the French military in protecting the West Mediterranean coast. Therefore, the presence of these nations as the African Union Force is not high by any means.

It is mostly a political alliance, which was created in fear of the declining influence of African governments, resulting from the Europeans' reentry into Africa, and their operation as a united coalition force is mainly centered around overseas deployment.

They also have strong military ties with the European Union, and many African armaments, TSFs in particular, are European craft such as the Mirage III or the Tornado.

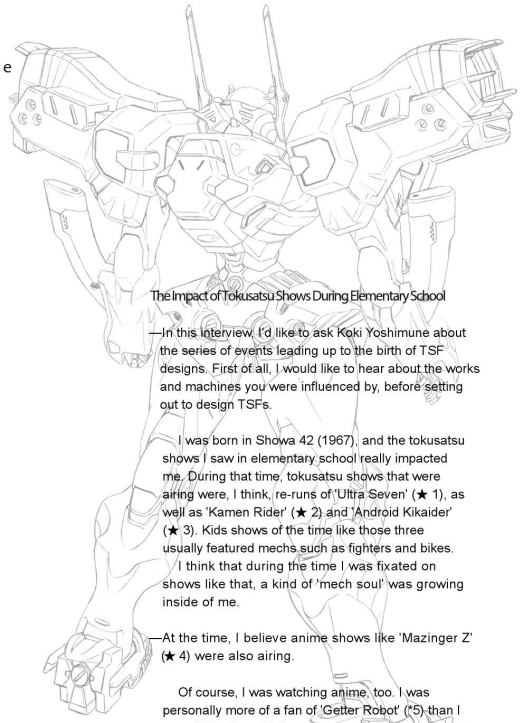
They have also imported American craft such as the F-4 and F-5, and the Soviet Union's MiG series, when both of these powers were looking to cheaply sell off their craft. However, many of these have been refurbished into specifications shared with European craft as part of the inspection and maintenance processes.



Chapter 08
Interview: Mech Design

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Muv-Luv Alternative
Interview with,
Koki Yoshimune



The Path to Creating the TSF Designs

What are the roots of the mech designer, Koki Yoshimune?

The following is a translation of an interview with Koki Yoshimune, the original author of the Muv-Luv series, and the creator of TSFs. By looking into Koki Yoshimune's influences, such as tokusatsu shows, sci-fi novels, and anime, this section will unravel the question of how TSF designs were born.

The Impact of Tokusatsu Shows During Elementary School

—In this interview, I'd like to ask Koki Yoshimune about the series of events leading up to the birth of TSF designs. First of all, I would like to hear about the works and machines you were influenced by, before setting out to design TSFs.

I was born in Showa 42 (1967), and the tokusatsu shows I saw in elementary school really impacted me. During that time, tokusatsu shows that were airing were, I think, re-runs of 'Ultra Seven' (★ 1), as well as 'Kamen Rider' (★ 2) and 'Android Kikaider' (★ 3). Kids shows of the time like those three usually featured mechs such as fighters and bikes.

I think that during the time I was fixated on shows like that, a kind of 'mech soul' was growing inside of me.

—At the time, I believe anime shows like 'Mazinger Z' (★ 4) were also airing.

Of course, I was watching anime, too. I was personally more of a fan of 'Getter Robot' (*5) than I was of 'Mazinger Z'. I preferred more machine-like designs, rather than robots with eyes, noses, and mouths, which are more human-like in appearance.

—Were you influenced by any books?

Let's see. In my elementary school's library, there were novels written by sci-fi authors, aimed at children.

Among those, there was one called 'Nippon Kodomo Yuugekitai' (★ 6; The Japanese Children's Flying Forces), which was like a kid's version of 'Ender's Game' (★7), and it was quite extreme. [laughs]

It's a story where a child is torn apart from his family and thrown into a military organization where he battles monsters. There were scenes like an elementary school kid, who was a general, feeling homesick by looking at a photograph of his parents. But its final revelation was much like in 'Battle Royale' (★ 8)... it was a world created by adults to prevent the children from revolting.

Aside from that, there was a description of the smell of burnt flesh from after a heat ray gun was fired. I found that really shocking as a child.

Now that I think about it, I wonder if it's really okay to let children read such graphic content! [laughs]

I was also influenced by a Soviet novel called 'Crabs On The Island' (★ 9). It's a story in which a crab-shaped mech that was made as a military weapon, self-replicates. Its moral is that those who make weapons will get a taste of their own medicine. Truth be told, those crab-shaped mechs are one of the sources of inspiration behind the BETA in Alt.

How the Powered Suits from 'Starship Troopers' Had a Big Impact

—Could you please tell me about the machines that influenced you, From the works you encountered at the time?

I guess what had a big impact on me were the powered suits from 'Starship Troopers' (★10).

Kato Naoyuki from Studio Nue (★ 11) was responsible for the illustrations of the powered suits,

Koki Yoshimune

âge representative. Since his debut work, 'Kimi ga Ita Kisetsu', he has released several masterpieces, such as 'âge MANIAX' and 'Kaseki no Uta'. He has also taken numerous roles including planning and writing the scenario for 'Kimi ga Nozomu Eien', as well as the planning, scenario, and mech designs for 'Muv-Luv' and 'Muv-Luv Alternative. He has also worked on the planning, scenario, and mech designs for the side story 'Muv-Luv Alternative Total Eclipse', which was serialized in TECH GIAN.

★ 1 : Ultra Seven
A tokusatsu show that aired every Sunday at 7pm, in 1967 and 1968.It was produced by Tsuburaya Productions, and there were 49 episodes in total. Compared to the rest of the Ultraman series, it had a stronger dramatic tone, and depicted things such as military confrontations between aliens and humans, as well as information warfare.

★ 2 : Kamen Rider
A tokusatsu hero show that aired a total of 98 episodes from 1971 to 1973 and was created by Ishinomori Shotaro. Since it featured novel ideas for its time, such as having motorbikes, it would greatly influence future hero shows.

★ 3 : Android Kikaider
A manga and anime series, written by Ishinomori Shotaro. The manga was published in Weekly Shounen Sunday, from 1972 to 1974. For the manga, Ishinomori himself only worked on the basic panel and dialogue placement, the draft, and some of the illustrating. Most of the work was relegated to four assistants.

★ 4 : Mazinger Z
A manga written by Nagai Go. It began as a serialization in Weekly Shounen Jump, but was later transferred to TV Magazine. While working on Mazinger Z, Nagai Go was amazingly also able to serialize 'Devilman' in Weekly Shounen Magazine. The anime adaptation had a total of 92 episodes, which were aired from 1972 to 1974, and was seen as a pioneer for giant robot anime. Its reception overseas was also positive, such as in Spain, where viewer ratings reached over 80%.

★ 5 : Getter Robo
The original manga was written by Nagai Go and Ishikawa Ken. An anime adaptation was aired from 1974 to 1975. It is seen as the flag-bearer for transforming and fusing robots.



Author: Kitagawa Sachihiko
Art: Tashima Seizou

★ 6 : Nippon Kodomo Yuugekitai (The Japanese Children's Flying Forces)
A novel written by Kitagawa Sachihiko that was published in 1970. It featured very strong characteristics of both narratives and fairy tales, with concepts such as children being gathered to protect Japan and who join the 'Japanese Children's Mobile Unit', battling robots that infiltrated their organization, and also encountering an alien disguising itself as their commander.

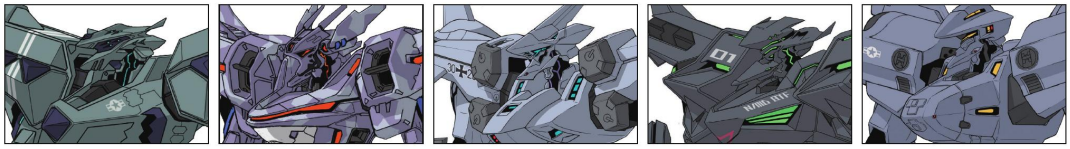


Author: Orson Scott Card

★ 7 : Ender's Game
A sci-fi novel by Orson Scott Card about a genius child called Andrew, who belongs to a Battle School, which was established to repel the alien invasion of Earth.It won the Nebula Award in 1985 and the Hugo Award in 1986.

★ 8 : Battle Royale
A novel by Takami Koushun that became controversial for its shocking content: fifty classes are chosen indiscriminately from middle schools across the country, and the students in each class are made to kill each other until only one student remains.

★ 9 : Crabs on the Island
A sci-fi novel by Anatoly Dneprov. In Japan, it was published in the second volume of the 'Modern Soviet Sci-Fi Short Story Collection', but as of now, it is extremely rare.



and even as a child, I thought they looked kind of different to what you'd expect.
What you would expect as a child, was either a hero transforming into costume, but staying the same size, or a giant robot.
What made a big impact on me was the excitement of an ordinary person becoming a weapon after wearing the suit, and also the presence of a powered suit as a military weapon.
Because of those powered suits, I begged my parents to buy me all of the novels that Studio Nue had illustrated.
It's like buying a book based on its cover—buying it based on its illustrations. [laughs]

—What about things other than powered suits?

Obviously, I can't exclude 'Space Battleship Yamato' (★ 12) from the roots of my mech designs.
Anyway, I really liked it, so I started designing my own imaginary Space Battleship Yamato.
Andromeda's the strongest. [laughs]
There's also Mechagodzilla (★ 13).
The scene where Mechagodzilla gets pincered by King Caesar and Godzilla, and attacks both at the same time with beams from his neck and chest was superb. That kind of display is unique to robot monsters.
Later, 'Gall Force' and 'RoboCop' did the same kind of thing. It's nice when the show takes advantage of the designs.
Mechagodzilla's influence is why the Shiranui's gun rack can activate and shoot backwards . [laughs]

The Systematic Care Afforded to the Designs

—After 'Yamato', which mechanical designs were you influenced by?

In regards to super-robots, I liked the design of 'Zambot 3' (★ 14), which was a well balanced mix of heroism and mech tastes.
After that, I was obviously influenced by 'Mobile Suit Gundam' (★ 15).

—Speaking of 'Gundam', I think that was the first piece that featured a mass-produced craft.

I'm pretty sure that in 'Mechander Robo' (☒ 16), there were mass produced craft on the enemy's side.
But apparently that's because they were lacking budget, and often ended up re-using stock footage (★17).
Saying it like that makes it sound disappointing, but I think it's a good example of efforts made under restrictions that led to the creation of a new idea. [laughs]
Anyway, I tend to like mass-produced craft rather than the protagonist craft, so when I'm playing Gundam games, I always pick the GM type craft.
I'm not fond of works in which the mass-produced craft are weak for no good reason, and even when watching Gundam, I thought to myself that off screen somewhere, there was probably a nameless GM pilot defeating Zakus [laughs]!
In a battle scene from the 'Encounters in Space' arc, I was breaking into applause during cuts, like one where a GM kicked a Dom, knocking its head off. [laughs]

—It's nice how the Mobile Suits of the Federation, such as the GM series, have proper lines established.

The GM's line ends up leading to the Gundam Mk-II too. I like those kinds of systematic designs so much, it's unbearable!
Previously, when mech designer Izubuchi Yutaka (★ 18), came on as a guest for 'KimiNozo Radio', we talked about the movie version of 'The Super Dimension Fortress Macross' (★ 19).
Izubuchi was the one who redesigned Kazutaka Miyatake's (★ 20) Nousjadeul -Ger, and in that redesign, the craft's eyes and silhouette resembled a Regult, and it really felt like a Zentradi (★21) craft.
When we were talking about that with Izubuchi, he stated that mechs are a microcosm of the world's background.

"Studio Nue forms the roots of my mech soul"
——Koki Yoshimune

He said that mechs can instantly inform the audience of a world's scientific and technological capabilities, as well as the infrastructure available to make them.
You have to design the mechs with close attention to the systems of the world's setting, so you can't lie with them.
I really empathized with that.
The battleship designs in 'Yamato' and 'Star Trek' (★ 22) were done the same way, and it was amazing how they properly represented a unified and consistent world concept and technological advances.
Even for cases where the designs of the robots are completely different, that's interesting in its own way if it has a world concept to match.
You can get quite into it, if you can see the world's background.
That's why I like the Earth fleet in 'Yamato', and the Federation in 'Gundam'. [laughs]

—Though, I think that Zeon mechs are also designed to offer a glimpse into that kind of background. [laughs]

To be honest, they're cool, yes. [laughs] Come to think of it, a long time ago, when my friends and I would go on about Gundams, I thought to myself that the Gouf were the best.

But I think that Zeon types are too cool. Their appearance leans too much towards the crowd-pleasing side. [laughs]
I personally think the coolness of the Zeon Mobile Suits is the same kind of cool as in Mazinger.
On the other hand, the Federation's are inorganic, like from Getter. [laughs]

Becoming Heavily Impacted by Studio Nue's Works

—Speaking of works that influenced you after 'Gundam', would 'Macross' be one?

Yes, of course. [laughs]
Studio Nue forms the roots of my mech soul. [laughs]
At the time, I learned from Animage that a show named 'Macross' would begin, and there was an image of the VF-1J with its hand sticking out towards the viewer, with an explosion behind it.
That really left an impression!
I was so excited, I thought I was going to pass out, thinking that Studio Nue would take the main role, and do everything from the world setting to the design of the protagonist craft!
I bought the magazine and immediately headed home, but when I sat down to read it, there were no articles on 'Macross' other than that single page. [laughs]

—That must've been disappointing. [laughs]

I felt defeated, so I traced the Valkyrie over and over, to memorize its form. [laughs]
Even now, I can draw it from memory.
After that, things like ARMD1 and Destroids were revealed in articles from magazines like OUT and



Author: Robert Anson Heinlein

★ 10：Starship Troopers
Robert Anson Heinlein's most prominent work, which won the Hugo award in 1960. It has been adapted into movies, under the same title. It seemed to support war, and was therefore controversial in the US, given that it was released during the Vietnam War.

★ 11：Studio Nue
A planning and production studio that mostly works in the sci-fi genre. Their most prominent work is 'The Super Dimension Fortress Macross'. They put an extreme amount of detail into the interiors of the mechs, as well as their functions. They also actively seek advice from experts such as those in space development, and military commentators.

★ 12: Space Battleship Yamato
A TV anime that originally aired in 1974, though would later receive sequels. Its story focused on how mankind, having been losing a one-sided battle against the Gamilas invasion, creates a wave motion engine, based on blueprints found in a communications capsule, sent from Iskandar. In order to stop the radioactive contamination of Earth, humans must board the completed Space Battleship Yamato to reach Iskandar and return to Earth within a year. It was the forerunner of the anime boom that followed.

★ 13：Mechagodzilla
A robot based on Godzilla that first appeared in the 1974 film 'Godzilla VS Mechagodzilla', which was the 14th installment of the Godzilla series. Although it was able to torment Godzilla, it was defeated. Afterwards, it would make appearances over several generations.

★ 14：Invincible Super Man Zambot 3
An anime series directed by Tomino Yoshiyuki that aired a total of 23 episodes from 1977 to 1978. It is extremely unique, and isn't a simple morality play, with scenes such as its shocking finale, and scenes in which the protagonists are disliked by the populace, and are treated as burdens.

★ 15：Mobile Suit Gundam
An anime series directed by Tomino Yoshiyuke and produced by Sunrise, and which aired from 1979 to 1980. Both this series and Space Battleship Yamato had a significant influence on future anime.

★ 16：Mechander Robo
A robot anime from 1977 that aired a total of 35 episodes. Its story involves a combat robot called 'Mechander Robo'. It was created in Japan, to oppose the 'Congiester Corps', which had occupied 95% of the Earth, with Japan as the only nation to have avoided the invasion.

★ 17：Stock footage
The lack of budget mentioned in this interview is only one reason for why old footage needed to be reused. However, another reason was that their main sponsor, Bullmark, went bankrupt, and no sponsor emerged to take over. Under normal circumstances, a show would be called off if this happened, but the staff reached a conclusion, by using preexisting content and footage.

★ 18：Izubuchi Yutaka
He is an active mech designer and illustrator, and was the director of 'RahXephon'. He has designed the Nousjadeul-Ger from 'Macross' (this is the equivalent of a powered suit in the Macross world), mobile suits such as the v-Gundam from 'Mobile Suit Gundam: Char's Counterattack', and Ingram from 'Patlabor'.



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★ 19：The Super Dimension Fortress Macross
A TV anime produced by Studio Nue that aired a total of 36 episodes from 1982 to 1983. A movie adaptation, 'Macross: Do You Remember Love?' premiered in 1984. Macross would become a significant influence on future anime and manga.

★ 20：Kazutaka Miyatake
A mech designer and illustrator for Studio Nue. He has designed things such as the powered suits in 'Starship Troopers', Orguss from 'Super Dimension Century Orguss', Dunbine from 'Aura Battler Dunbine', Andromeda from 'Farewell to Space Battleship Yamato', and the Arcadia from 'Galaxy Express 999'.


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★ 21：Zentradi
Giant humanoid aliens that appear in the Macross series. The Regult is a one-man combat pod, piloted by the giant soldiers.

★ 22：Star Trek
An American sci-fi drama series that was first aired in 1966. It has been produced over several forms of media, including film and



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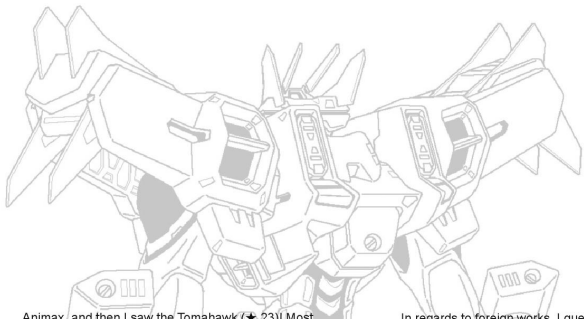
★ 23：Tomahawk
A type of 'Destroid', which are weapons that appear in 'Super Dimension Fortress Macross'. It uses heavy bombardments to eliminate enemies at close to medium ranges with its weapons, which are placed on the front surface of the craft.



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★ 24：Spartan
A close quarters 'Destroid', made with the expectation of entering hand-to-hand combat with aliens.

★ 25：Techno Police 21C
A sci-fi anime movie that premiered in 1982. It was a series where humanoid robots, such as Blader, cooperate with human investigators to fight horrible crimes. The series was produced with assistance from Studio Nue. The film's main characteristic is its realistic mechanical designs.



Animax, and then I saw the Tomahawk (★ 23)! Most of its parts, like its face, were like those of a powered suit, right?! I was so excited that it felt like my legs gave way for the first time. [laughs]
By the way, I thought that the Spartan (★ 24) was a bad guy at first, since it's green. [laughs]
I had gone off and imagined my own story for it, like how the Spartan is a craft from a really strong military state.

—The designs of the mechs were pretty realistic too, weren't they?

A Tomcat's silhouette transforming into a humanoid one, without breaking apart - whether you like it or not, that makes you think that it's a possible extension of current technology.
They also created the GERWALK, a human invention. No, more like part of mankind's heritage. [laughs]
Well actually, the prototype craft looked cooler since it looked more advanced and stealthy [laugh].
But I've personally interpreted that as being an omission of the expensive stealth systems when moving to mass production. [laughs]

—Things like that tickle an otaku's heart, no? It's almost manic. [laughs]

Speaking of being manic, I was influenced by 'Techno Police 21C' (★ 25).
On a black and white page in OUT Magazine (★ 26), there was a picture of Blader shooting a rifle from a prone position, which was really cool.
In fact, Scanny (★ 27) is a forerunner of robot moe, right?
The robot tank Temjin (★ 28) was cool too.
The cars that appears in it had hydrogen engines, so I guess Mazda is heading towards a Studio Nue style future. [laughs]
Studio Nue was working on all sorts of things at the time, and things like the space fighter called 'Astra Shark', which appeared in the space arc of Nagai Go's 'Shutendoji' (★ 29), they looked really cool.
The spaceships in that show are asymmetric, which was shocking.
The King Beal in 'Zambot 3' is also like that, but at the time, mechs that were asymmetrical were really uncommon

—It looks like you really liked Studio Nue.

I think it's because their designs weren't based on aesthetics alone, but were something grounded in a technological background.
There was some information that Izubuchi was talking about; how thirty years ago, there was no fixed idea about which things would jet out flames, like a vernier. But when you look at Nue mechs, you can see a board-like thing stuck there, and it makes you go, "What's this?!".
Nowadays, things like two-dimensional vectoring nozzles, and the control paddles of the X-31 aren't uncommon, but when you see something you don't understand being designed, you can't help but look into the source of that technology.
A long time ago, only the theory behind vectored nozzles existed, and the internet wasn't around either.
It's something that you mightn't notice, even if you intensely pored over the black and white pages of the KOKU-FAN magazine. [laughs]
Maybe that's why I admired them as a child, thinking that really smart people must have been drawing those.

The 'Skydiver' - The Mech That Was the Base for the Wadatsumi

—Was there any machinery that appeared In foreign movies or television that influenced you?

In regards to foreign works, I guess the go-to works are things like '2001: A Space Odyssey' (★ 30), and 'Star Wars'.
By the way, I preferred the TIE Fighter to the X Wing, since they were more inorganic. [laughs]
I've been buying toys of the Eagle Transporter from 'Space: 1999' (★31), from overseas, for a long time. [laughs]
I also liked ITC's (★ 32) 'Thunderbirds' (★ 33) and 'Captain Scarlet and the Mysterons' (★ 34), since their mechs felt kind of real, or like they could exist.
And the most important might be 'UFO' (★ 35).
The Skydiver (★ 36), which appeared in that, was a submarine with a plane attached to its tip, and it's the mech that became the source material for Alt's Wadatsumi.
The story of 'UFO' was really interesting, and it's quite ruthless, with things like a commander being forced to choose between prioritizing the mission or his child, and in the end, his child dies. [laughs]
Though I probably ended up making Alt because I grew up watching things like that. [laughs]

—There's quite a few spacecraft and aircraft in those works. Was there any kind of trigger that got you interested in aircraft?

When you're in elementary school, you write reports on movies that you saw during the summer break, as part of your homework, right?
I think it was in third grade when my parents took me to the cinema.
Everyone would go see premiere films like the 'Toei Manga Festival', but the one I watched was 'Sekai no Saishin Heiki: Super Weapon' (★ 37; The Newest Weapons of the World). [laughs]

—You have some unique tastes. [laughs] It looks like you already had some background in that then. Did you say that you wanted to go watch it yourself?

Of course. I said I wanted to see that one, and I had my parents take me to see it. [laughs]
A while ago, there were lots of Mooks, magazine-books, being released that were related to weapons, and I often got my parents to buy me publications like that too.
Since I was still in elementary school, that was in the 70's.
I guess it's around the UFO and occult boom.

—Around then, the F-14 and F-16 would have been the latest weapons.

The 'Lieutenant Belenko Defection Incident' (★ 38) occurred when the F-4 was the standard for really cool looking fighters, and that's where I first saw the MiG-25.
I was moved, and really excited about the two vertical stabilizers. The F-4 looked so lame in comparison. [laughs]
But when I went to the plastic model shop, the one they sold was similar, but looked different and smoother.
Well, that was the F-15. [laughs]
Also, there was an acquaintance of my parents working for the Defense Agency, and it was right around the time when they were selecting things like the F-15 and F-16, so I got to hear all kinds of inside stories. The stories came in handy when writing 'Total Eclipse'
By the way, that person also gave me a pen holder that had a 20cm or so steel model of an F-15 attached to it.

—That's a nice story. [laughs]

It was something that was sent to the staff at the Defense Agency at the time, when they decided to import the F-15.
That made me happy.
Anyhow, I've always liked those kinds of weapons and fighters. In first grade, when I was told write a poem, I ended up writing one about fighters.



I even drew a fighter equipped with explosives for the poem. [laughs]
However, my teacher was 'that kind of person', so I got into a bit of trouble after that. [laughs]

—Did you ever find yourself interested In tanks?

I like the form of tanks, especially Sweden's S Type tanks. It's the Countach of the tank world. [laughs] I also made a lot of Tamiya's 1/35 scale models, of things like the Type 74 tank (★ 39).
In the end, when I was altering Imai's plastic model of the Tomahawk, I ended up re-appropriating the tank's infrared projector for it. [laughs]

—It sounds like there isn't much love for tanks there. [laughs] So are you more a fighter kind of person then?

I might just like things that are pointy and jagged all over, but still feel sharp. Maybe that's why not many mechs in Japanese tokusatsu make an impression on me. All of them kind of give a sluggish impression. [laughs]
Ah, but I think I really like the Ultra Hawk No. 1, as well as the Moonlight SY-3, which appeared in 'Destroy All Monsters'.

—In the end, they're still types of aircraft. [laughs]

The Terminator Created During High School

—I've heard that while you were in high school, you started on the designs that would later become TSFs.

Around that time, I seriously wanted to become a manga artist, so I was doing all sorts of things.
Since I always liked mechs, it was natural for me to do scribbles of mech designs as a child.
One of the robot's faces I drew during high school ended up being adapted straight onto the Su-37. [laughs]
At the time, there was kind of a boom in refining designs, so I jumped onto the bandwagon and drew all sorts of things, such as Mazinger fan art. I did the same to Getter 2's face and ended up with the Su-37's face.
You can also tell that Getter 2's drill and the Su-37's chainsaw are kind of similar right? Both have a kind of masculine spirit of being cruel weapons or something.
The pilots were also a little cool and eccentric. [laughs]

—It sounds like you were extremely active, even back then.

Well, if you put it nicely, I guess so. [laughs] If I look back on it now, it's kind of embarrassing. [laughs]
I remember things like writing extensive character designs and background settings for illustrations, to insert into novels written by my friend in high school. [laughs] He was writing sci-fi novels that were like the light novels of today. At the time, while reading them, I thought that guy was a genius.
Well, a few weeks later, I found out it was a rip-off of 'Crusher Joe'. [laughs]
While we were working on it, I added in too many background settings, and made him redo the story and characters so much that he just told me he couldn't do it anymore.
Even now, I feel bad about it.

—You were already doing harsh checks since all the way back then... I feel like I can relate to your friend. [laughs]

I'm reflecting on my mistake. [laughs]

—What happened next?

A lot did, and several years passed. Once I got employed, I became more distant from my otaku interests.
But when the bubble looked like it was going to burst, and I was changing jobs from the publishing industry to the games industry (★ 40), I presented novels I had written myself and color illustrations that I had prepared, as well as the background setting materials, which I had made during high school.
For mech designs alone, I had drawn about two hundred B4 sized pages.

—Two hundred?!

Not only had I drawn many spacecrafts, but also interiors, powered suits, and both ally and enemy mech designs. As a side note, the things I drew back then in high school were the roots for the TSFs I illustrated.
To top it off, I had even drawn one with a noticeable antenna, to be designated as a 'commander type'. [laughs]
If you think about it rationally, the commander would get shot down instantly with that. [laughs] And for real robot things after that, I made sure not to have formations of varied types of craft, excluding improvised, field formations, and composite forces.

"One of the robot's faces I drew during high school ended up being adapted straight onto the Su-37. [laughs]"
——Koki Yoshimune

—But In any case, the basic concepts behind TSFs seem to be quite old.

Well, since I liked planes and robots, because Macross made an impact on me, and also since I was really into Legioss, it was a natural conclusion for me to go back to aircraft-type robots.
What was even more embarrassing was that those robots were part of a plan for a fifty-two episode anime series.... [laughs]

—You went straight to planning an anime [laughs]!?

I even decided on the titles and content of each episode. And on top of that, I even imagined up to the point where they would pull the plug on the show midway [laughs]! After it was pulled off air, it'd gain popularity over a few years, then get turned into a feature film. When that happens, the character designs would become more detailed and slightly more realistic looking. All this is just too embarrassing. [laughs]

—But that sounds like fun. Why not turn that into your next project [laughs]?

What was even more embarrassing was that those robots were part of a plan for a fifty-two episode anime series... [laughs]

—That sounds really embarrassing. [laughs]

Yes, it's the worst. [laughs]
At the time, the defense expenditure was only hovering around 1% of the GNP, so the concept behind it was that the 'mobile high school girls' were new weapons that would strengthen defense capabilities, while their existence as new weapons was concealed. One would be deployed to each prefecture, and to each ward of Tokyo and Osaka. [laughs]
And parliament would argue over defense expenditure going over 1% whenever the girls bought too many things like crepes and clothes.... [laughs]

—I feel like I've seen a twenty-three district version of that somewhere. [laughs]

The combat suits of those heroines were an adhesive type, where their breasts were bare, and the front part was made of a transparent, bulletproof film. Well, in short, I'm saying that that was the origin of Alt's fortified suit. [laughs]

—Woah, it's all connected [laughs]. Is there any relevance of the storyline to Alt, too?

No, none at all. [laughs]
Though, I did turn some of those planned anime episodes [laughs] into doujin manga.
One day, the mobile high school girls from other prefectures get beaten one by one, and once they start looking into it, a girl appears, even though she was thought to have died in a nuclear blast from a battle in Osaka.
She was a mobile high school girl, originally deployed to Chuo, but was sent to Warabi, and she resented that. And even though she was wounded in Osaka, help didn't come, so she decided to betray Japan and side with the Americans who had come to recover her for research purposes.

★ 26：Monthly OUT
An anime magazine, published by Minori Shobou, from 1977 to 1995. Hijiri Yuki's 'Locke the Superman', which is mentioned in a later interview, has also been serialized in this magazine.

★ 27：Scanny
A female robot that appeared in 'Techno Police 21C'.

★ 28：Temjin
An airborne tank that appeared in 'Techno Police 21C'.

★ 29：Shutendoji
A manga by Nagai Go and Dynamic Productions. It was serialized in Weekly Shounen Magazine between 1976 to 1978. It would later be turned into an OVA.

★ 30：2001: A Space Odyssey
A sci-fi film and novel that were both released in 1968. The film's screenplay was written by Sir Arthur Charles Clark and Stanley Kubrick, and the film was directed by Kubrick.

★ 31：Space: 1999
A sci-fi TV series, created in the UK by Gerry Anderson. 48 episodes were produced, and they were distributed by ITC.

★ 32：ITC
A British company for television production and distribution. ITC is an abbreviation of International Television Corporation.

★ 33：Thunderbirds
A British TV series that originally aired in 1965. Each episode was an hour long, and the show featured puppets. It was produced by AP Films, led by Gerry Anderson, who had produced many TV series and movies with puppets. It was distributed by ITC.

★ 34：Captain Scarlet and the Mysterons
A British sci-fi and puppetry TV series, produced in 1967 by Century 21 Television, led by Gerry Anderson. It had a total of 32 episodes, distributed by ITC.

★ 35：UFO
A sci-fi TV series produced by the British company Century 21 Television. It was aired in Japan from 1970 to 1971, on the Nippon Television Network System. It is cited as being a reason as to why UFOs are well known among people today.

★ 36：Skydiver
A craft that appears in 'UFO'. It is a composite of a submarine and fighter, and belongs to an organization named SHADO.

★ 37：Sekai no Saishin Heiki: Super Weapon (The Newest Weapons of the World)
A film that premiered in 1978, and featured things such as the Lockheed SR-71, a supersonic strategic reconnaissance aircraft, the Boeing YQM-94A and Ryan BGM, which were unmanned reconnaissance drones, as well as the Pegasus-class hydrofoil.

★ 38：Lieutenant Belenko Defection Incident
On September 6, 1976, Lieutenant Belenko, an active officer of the Soviet Armed Forces during the Cold War, landed in Hakodate, Japan, in an MiG-25 interceptor fighter and sought asylum. It was also referred to as the MiG-25 Incident. As the SDF had low authority, it led to chaotic situations, such as SDF personnel being locked out of Hakodate airport by police, who had sealed the airport.

★ 39：Type 74 Tank
A tank operated by Japan's Ground SDF. It was developed as a successor to the Type 61 Tank, and is classified as a second generation main battle tank.

★ 40：Moving to the games industry
He first moved to the company 'PANDORA BOX', then established the currently existing company ACID Co. Ltd.

★ 41: Space Sheriff Sharivan
A tokusatsu TV program that aired every Friday from 1983 on the TV Asahi Network. It had a total of 51 episodes, and is the second installment of the Space Sheriff Trilogy, after 'Space Sheriff Gavan'.

★ 42：Strike Witches
A mech bishoujo illustration column, serialized since the first issue of Comp Ace by Shimada Fumikane. It depicted anthropomorphized versions of air force and army weapons from World War II. It was later adapted into an anime. The catchphrase 'They're not panties, so it's not embarrassing!' made it a hit.

★ 43：Shirow Masamune
A manga artist, responsible for works such as 'Ghost in the Shell' and 'APPLESEED'. He has earned high praise for his attention to detail, his novel mechs and ideas, and also for his world concepts. 'Ghost in the Shell' would later be adapted into an anime film, by Oshii Mamoru.

★ 44：Sonoda Kenichi
A manga artist known for works such as 'Gunsmith Cats' and 'Cannon God Exaxxion'. He worked on the story board of the OVA for 'Riding Bean', despite being the original author. He is capable of character and mechanical designs, and even story boards. He has been responsible for many works across anime, and even games.

★ 45: Asari Yoshitoo
A manga artist, whose works include 'Space Family Carlvinson' and 'Manga Science'. He has also engaged in other works, including the design for the third angel, Sachiel, in the anime 'Neon Genesis Evangelion'.

★ 46：Black Magic M-66
A sci-fi manga and anime, originally created by Shirow Masamune. It is a collection of his works from before his major debut.

★ 47：Yamashita Ikuto
A currently active illustrator and mech designer. He has worked on the mech designs for things such as 'Neon Genesis Evangelion' and 'Yukikaze'. He is also active as a manga artist, having serialized 'Dark Whisper' in 'Monthly Comic Dengeki Daiou'.

★ 48：Kio Seiji
A manga artist, who has worked on 'Hajimari no Wakusei' (The Planet of Beginnings), which was based on 'Starship Troopers'. He has also been involved in the mech design for Yukikaze, and several designs for 'Rebuild of Evangelion'.

★ 49：Hoshino Eiki
Not only does he work on mech designs and illustrations, but he has also conducted several investigations into the technological concepts of several works. He has worked on the 3D CG modeling of Gundams in 'Gundam Museum'.

Muv-Luv Alternative Interview with, Koki Yoshimune



And because of the information she leaked, a program was put in place to neutralize the functions of the bulletproof film, and so the enemy organization commenced the 'Nerima Ward Drought Operation'.

—That's something pretty big going down for a place as small as a ward. [laughs]

They generally crush small regions one by one. They've also conducted things with names like the 'Koto Ward Flooding Operation' and the 'Morioka Ice Age Operation'.
I wanted to do something that seemed silly, where a massive organization conducts serious, all-out operations on the smallest scale possible. Like Shockers from Kamen Rider attacking a school bus. An amphibious robot, which belongs to the enemy, also shows up in the story. I reappropriated its design, as it was, for the Wadatsumi's draft design proposal. [laughs]

—Another connection [laughs]! But didn't you just say that the Wadatsumi's base design came from the Skydiver?

The Skydiver's for the submerged invasion form. The concept was that it was a robot that would land from the ocean in droves, and be beat to a pulp by the mobile high school girls. [laughs]
As a side note, the concept for the equipment of the protagonists was like that in 'Space Sheriff Sharivan' (★ 41), where it would be equipped by being transmitted from a satellite system.
It was essentially the Sheriff's suit, but for girls. I also made it more revealing, removed the mask, and attached a mechanical part to the shoulders that has a gravity control paddle attached to its tip.

—If you were to make a modern version of that, it sounds like it would end up like 'Strike Witches' (★ 42).

It's not a fighter, just principal military arms of the Japan Ground SDF. [laughs]

Why the Gekishin Was Accepted?

—Didn't you continue that idea in doujins or something?

In our generation, doujins were mainly for original works, and it was an age crowded with people like Shirow Masamune (★ 43), Sonoda Kenichi (★ 44), and Asari Yoshitoo (★ 45).
I didn't have the guts to go to the same lengths among that crowd. [laughs]
But what I think is the most important part of an otaku spirit, or rather, the spirit of making things, is to look at a work and figure out what you would have done differently if you had made it.
I didn't have the capabilities to make an original work, but I feel that I had more of that mentality than others, which is why I've made it to where I am today.
For example, when I saw the doujinshi of 'Black Magic' (★ 46), it was so good that I felt defeated and I suddenly started drawing mechs and stuff too. [laughs]
During that time, when I first saw Yamashita Ikuto's (★ 47) doujins and manga, I was so shocked that my head went blank. I couldn't help but say, "Just what is this guy!?".

—Yamashita's designs have always been amazing, even now. Weren't you influenced by him?

He is so out of my league that I wouldn't be able to draw influence even if I wanted to. [laughs]
Anyway, Kio Seiji (★ 48) and Yamashita have always been amazing.
Their quality was amazing, and they had a way of strongly making you feel their world concept, while using a different approach to Nue's mechs. For example, they did things like Luigi Colani... I mean like having a manufacturer's logo on it, like a race car.

—They've been drawing manga with modern designs for a quarter of a century, and their wetsuits from about thirty years ago happened to have designs that resembled the plug suits in 'Eva'.

Maybe times have finally caught up to those two.

—In that sense, you're also using designs from twenty years ago, Yoshimune.

I'm nothing grand, so please don't talk about me in the same way as them. [laughs]
What I had done was simply mix and arrange all of the designs I was influenced by, in my own way, in order to create something.
I haven't created anything from scratch.
That's why I found it odd that the TSF designs were accepted by the players. Like, I wasn't sure that such an old-fashioned design would be so well received. But to be honest, there was a part of me that expected a reception like that.

—What do you mean by that?

First of all, it was the thought that because my designs weren't completely original, there was room for them to be accepted. Since my designs were similar to those that already existed, players who are reminded of the original sources would also like my designs.
Next, this is might be a little bit complicated, but I think that since Gundam is still the best selling robot anime, Gundam is the baseline for what new players consider a 'cool mech'. Regardless of the times, it's difficult to make changes to Gundam's designs.
That's why I think there are some designs that are far removed from Gundam, like some that are revolutionary and original, which creators would think are really cool, but would ultimately find difficulty in reaching the mainstream.
Ever since 'Eva', there was a temporary mood among creators that mechs with sloping shoulders were cool. That's why I feel that TSFs were accepted—their square shoulders hearkened back to an older era, and that resonated.

—Speaking of 'Eva', I've heard that Hoshino (★ 49) helped with some TSF-related designs.

Before I asked Niθ to work on the designs, I asked Hoshino to work for me in making concept designs.
The multi-purpose supplemental armor's design has been kept, as is, from Hoshino's design.
After that, I formally asked Niθ for designs. I had him use my own roughs and Hoshino's first drafts as references, in order to design finished versions for things like the Takemikazuchi, Shiranui, Susano-O, Gekishin, Fubuki, the Wadatsumi and the things surrounding it, and also the HSST.

—Please let us go into more detail regarding things like that in the latter half of the interview, on a per-craft basis.

Muv-Luv Alternative
Interview with, Niθ

We went to ask the mech designer, Niθ, about the secrets of how TSFs were designed!

We conducted an interview with Niθ, responsible for designs including the Gekishin, Shiranui, Fubuki, Takemikazuchi, and the aeronautic fortress 'Susano-O', all of which appear in the 'Muv-Luv' series.
We asked about topics including his inspiration for becoming a mech designer, and the story behind how he ended up with the role of designing mechs for Muv-Luv.

Niθ

A mech designer, key animator, and illustrator, who used to work for Nitroplus but turned freelance, as of 2006.
He has worked on key frames for some of the major works from Nitroplus, such as 'Zanma Taisei Demonbane' and 'Kishin Hishou Demonbane', as well as for 'Jingai Makyo' and 'Zoku Satsuriku no Django -Jigoku no Shoukinkubi-'.
Furthermore, he was active as a character and mech designer for the TV anime 'BLASSREITER', which was a result of the collaboration between GONZO and Nitroplus.
For Muv-Luv and Alternative, his roles included refining the designs of the main mechs, such as the Shiranui, Takemikazuchi, and Susano-O, as well as designing the secondary mechs.

Mechs and World Concepts Are Nothing More Than a Type of Spice

—Please tell us about what made you aspire to becoming an illustrator and mech designer.

The biggest thing would be that I was amazed by 'Megazone 23 Part II' (★ 47).
Until that point in time, I had only seen works that went like, 'a hero appears and kills the enemy while riding a robot—how cool!', but 'Megazone 23', even though it's a robot piece, the lead robot doesn't do much, and it turns into scrap halfway through... and to top it off, the main craft doesn't have the protagonist in it at the end.
In the final showdown with his rival, the protagonist gets hit, Tokyo gets destroyed, and the lewd scenes are rich... To be honest, it wasn't something I could understand that well, while still in the lower grades of elementary school. But I do remember feeling extremely energized, and also shocked.
I didn't really understand it, but it was something amazing. I recorded the TV broadcast on video, and kept watching it over and over until the tape wore out.
Even if I were to watch it again now, it would still be the best work, in my eyes.

—Please tell us about the events that led up to you taking on the mech designs for 'Muv-Luv Alternative'.

I don't remember so well, since it happened about seven years ago, but it went something like they were having trouble with the designs, so they asked me to help.
When I heard more details, they apparently also needed to start working on the key frames for the animations, so they needed fixed mech designs in two weeks.
To top it off, they hadn't started on the main mech at all.
However, since I did have Koki Yoshimune's quite detailed concept designs, I thought that it would work out, so I accepted the job.

—Please tell us about the impression you received when you first heard about the 'Muv-Luv Alternative' project from Yoshimune.

When I received the proposal and explanation, I felt Yoshimune's spirit that he wanted to make something that wasn't just playing around with a world concept, but something that ultimately depicted a drama.
I feel like I might get told that what I'm about to say doesn't belong in this kind of book, but I think that mechs and world concepts are nothing more than a type of spice.
I could feel that from him. Even though such a grand setting existed, I felt he wanted to depict an unwavering drama.
That's why I took the project, even though there was a ridiculous schedule.

> "Even though such a grand setting existed, I felt he wanted to depict an unwavering drama."
> —— Niθ

I Greatly Valued the Initial Concepts When Designing Them

—If there's anything that you referenced, or used as a motif while designing the TSF, please tell us.

Above all, I just didn't have any time, so I kind of just used the mech design patterns in my head, one by one.
The reason why it ended up being nicely coherent, even with that strategy, was probably due to Yoshimune's handling of it.
Also, fortunately for me, the concept design of the TSFs and the Susano-O were properly done, so my job was mainly to just put them together as design sketches, and adjust them to give an overall smarter impression.

—If there's any points you took special care in while designing the TSF, please tell us.

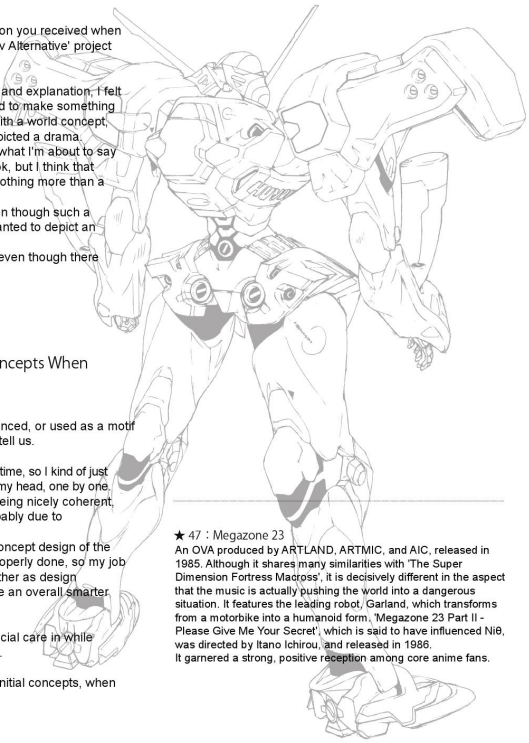
I greatly valued Yoshimune's initial concepts, when designing them.
Also, I took care not to go over the deadline.
Essentially, with only two weeks to work on the designs, I was probably finishing at least one craft per day.

—Were there any other problems you encountered?

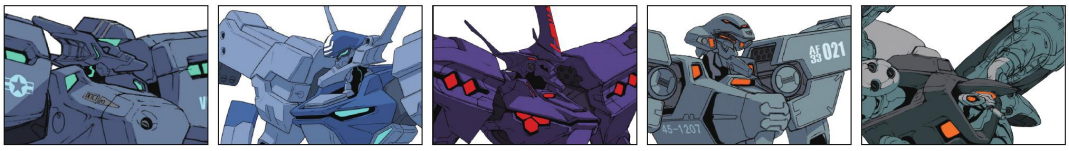
What makes a professional is probably the ability to be able to demonstrate their ability, even on a tight schedule, and even under all sorts of problems. But at the time, I was still not good enough.
The designs had a style that exposed my lack of ability, and I was left with many regrets over the job.
Later, I would end up illustrating the base images for the standing poses for things like TSFs. It's a nice memory now, but I was complaining to myself over my own design sketches while doing the TSF illustrations, muttering stuff like, "Niθ... You should have done a better job here..."

—What's the design you like most out of the mech designs you worked on?

That would be the melee blades of the TSF.
I think that was a design that really showed off my strong suit. Even though such a grand setting existed, I felt he wanted to depict an unwavering drama. —Niθ



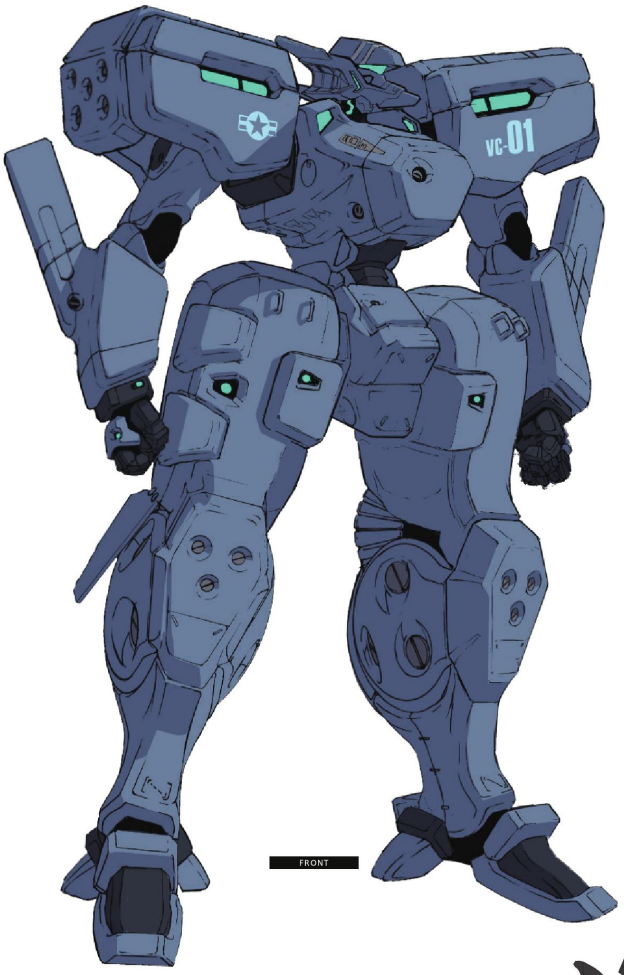
★ 47 : Megazone 23
An OVA produced by ARTLAND, ARTMIC, and AIC, released in 1985. Although it shares many similarities with 'The Super Dimension Fortress Macross', it is decisively different in the aspect that the music is actually pushing the world into a dangerous situation. It features the leading robot, Garland, which transforms from a motorbike into a humanoid form. 'Megazone 23 Part II - Please Give Me Your Secret', which is said to have influenced Niθ, was directed by Itano Ichirou, and released in 1986.
It garnered a strong, positive reception among core anime fans.



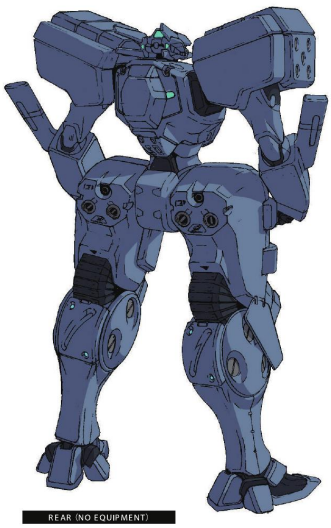
Mechanic Format & Interview

'Muv-Luv Alternative' References & Interview

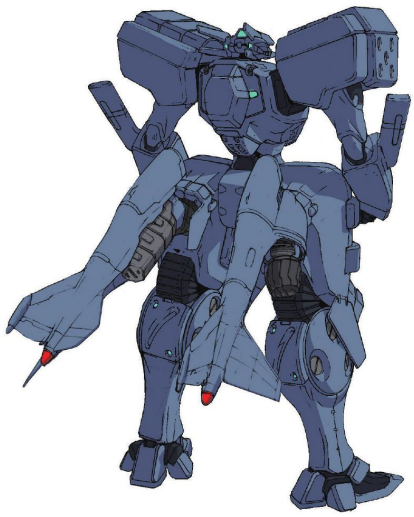
The TSFs that appear in 'Muv-Luv' and 'Muv-Luv Alternative', such as the Gekishin, had their designs completed by mech designer Niθ, based on the draft designs by Koki Yoshimune. This following section is an interview with Koki Yoshimune and Niθ, alongside the model sheets that were made during the production of the game.



FRONT



REAR (NO EQUIPMENT)

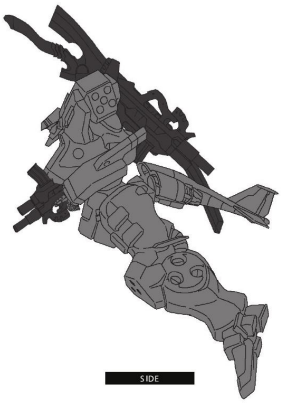


REAR (EQUIPMENT)

TSF Format

The 1st-generation TSFs are represented by the F-4J Gekishin. Their design concept involves protecting the airframe, with heavy armor. However, following the increasing number of casualties to the Laser classes, 2nd-generation craft and onwards would place a greater focus on mobility.
The F-4, mankind's first TSF has a characteristically unrefined and heavy form, compared to other TSFs, in accordance to the initial design concepts. As can be seen, the armor on the shoulders is extremely large. However, since the shoulder is supported by a sub arm, which allows it to move independently, the mobile range of the main arms is not limited by them.

UN Forces
Type 77 TSF
Gekishin

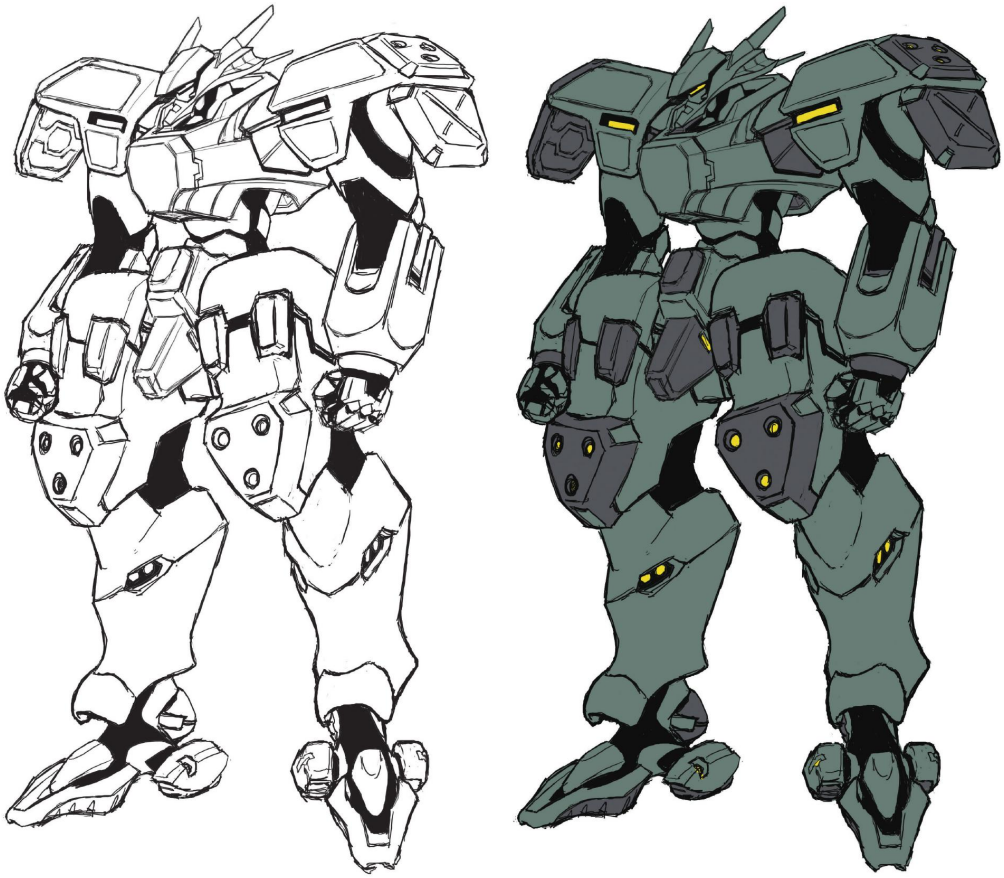


SIDE



JUMP UNIT

F-4 concept design



Interview with Koki Yoshimune

—Well then, I'd like to ask you about the concepts and designs of each craft. First, may we start with the Gekishin?

Yoshimune: As you are aware, the Gekishin is the Japanese specification of the F-4.

During planning stages, it was said that the Valkyries, led by Michiru and Mitsuki, would pilot it, but it was later changed to the Shiranui and Takemikazu-chi during the plot stages.

My inspiration came from silhouettes of things from the era of Studio Nue or 'Power DoLLS' (★ 1).

—Where did the name 'Gekishin' come from?

Yoshimune: The Japanese names of army TSFs are all based on atmospheric phenomena or weather. In short, their names are related to air.

As TSFs are the descendants of fighters, I was thinking I wanted them to sound like craft of the old military, to be in line with the world concept. 'Shin' comes from the short range fighter, 'Shinden'. I then added the word 'Geki' from the Japanese word 'Kougeki', meaning 'attack', to give the name 'Gekishin'.

It's a term I personally coined, which is a fancier name for the shockwaves from attacks and bombardments. [laughs] It was based on the shockwaves experienced when the Type 90 shot the 120mm during the Comprehensive Fire Power Exercise. That feeling of 'a wall of air colliding' truly had an earth-rattling impact.

—I see. That makes sense. Both the name and form have a heavy weight to them. So I guess it ended up with that design since it was a first generation craft with heavy armor?

Yoshimune: I was thinking that for mankind, the existence of the Laser class would be unexpected, and that they would be forced to focus on the ability to endure hits, as one of the lessons learned from the lunar surface, during the F-4's development. They probably didn't even have the technology to allow for swift movements.

Even if, during development, they had figured out that lasers existed, they probably would have responded by adopting thermal protection tile technology from space shuttles, since their world's space development technology was at least twenty years more advanced than ours.

Gekishin is the craft that had changed the most from its first draft, but I have to admit that I agree with how it ended up. Niθ's design sense is one of the best in the world. Even though they're mechs, they're strangely beautiful. There's no doubting that he's irreplaceable.

Especially the way he handles the back of the knees, and the calves. That's genius.

★ 1: POWER DoLLS

A tactical simulation game developed by Kogado Studio's Usagi-san Team. On the colony planet Omni, the player operates the 'Power Loader', a humanoid ground combat weapon, and conducts several missions.

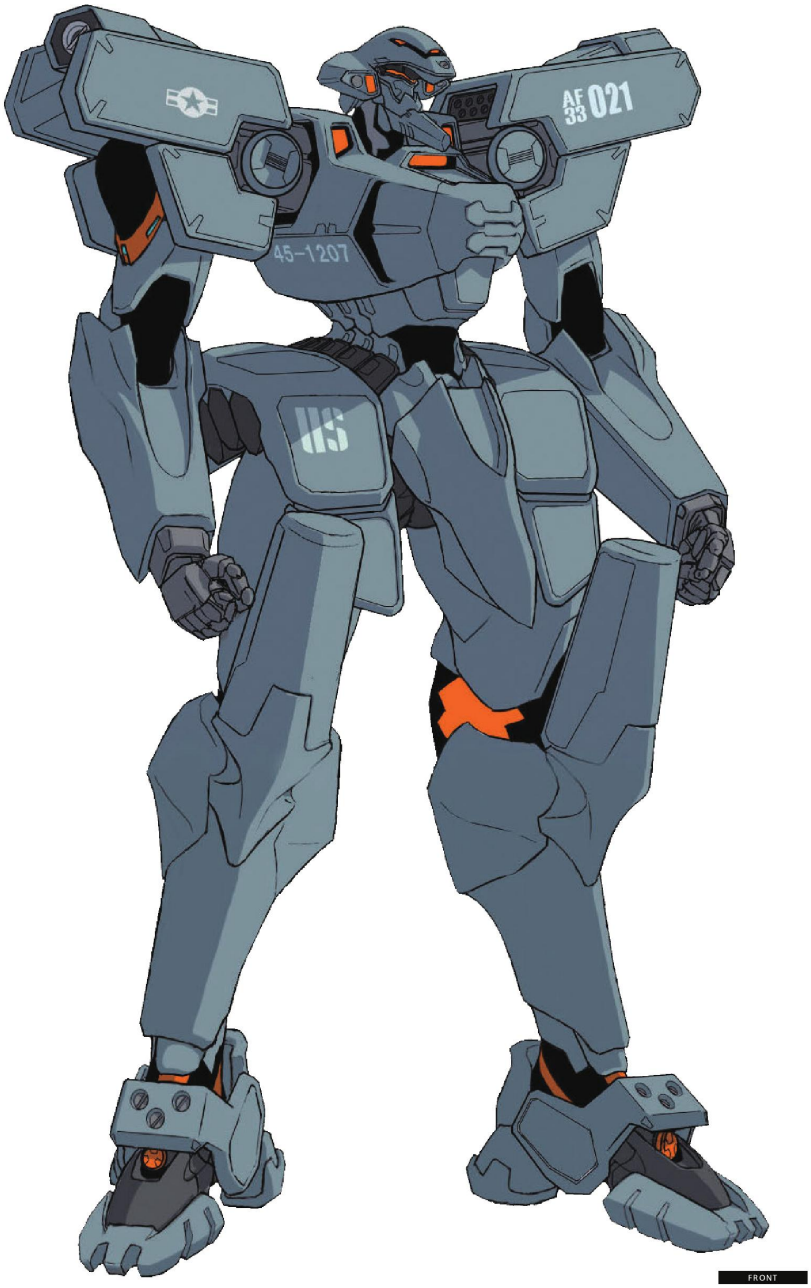
Niθ 's Comment

In regards to the Gekishin, I had an order from Yoshimune that above all else, he wanted it to have a clunky design.

At first, I was asked to work on the Shiranui, but I remember that while I was working on it, I was asked to see if I could design a craft that would be one generation behind it.

That's why I paid homage to the silhouette designs I saw as a child, in the design of this craft. I think it's such an homage that if an expert on the topic were to look at it, they would immediately figure out which part came from where.

It would have been better to conceal it a little better...



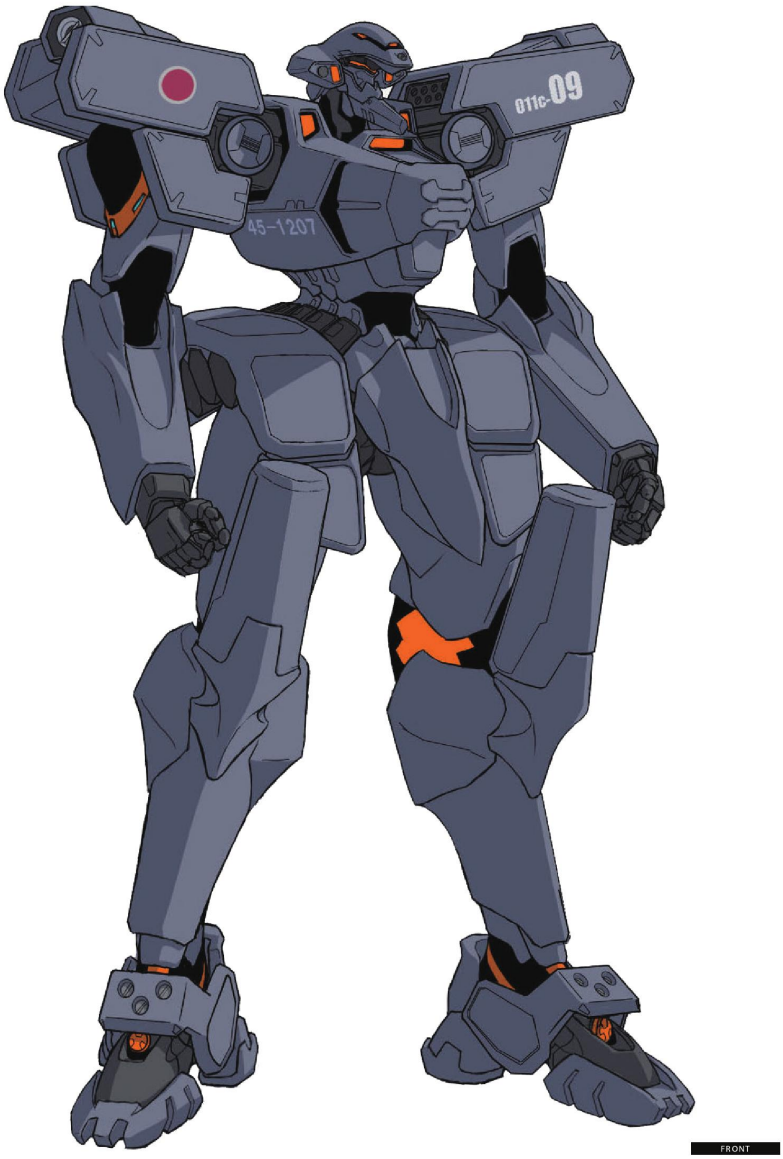
FRONT

TSF Format

TSFs from the 2nd generation and beyond have a slimmer design on their lower halves, compared to the F-4, in order to increase their mobility by raising the center of gravity and thus lowering their stability.
The characteristic knee block armor is actually a weapons bay, and can store things such as close-quarters short blades and spare magazines.

US Armed Forces

F-15E Strike Eagle



FRONT



SIDE

TSF Format

The concept art for the F-15J. The differences in appearance to the US Army's F-15 are limited to its airframe color and markings, but its interiors have been made with a greater focus on close-quarters combat, by modifications such as strengthening the manipulators that secure melee blades.

IJF
Type 89 TSF
Kagerou F-15J/TSF-Type89

Koki Yoshimune's Interview

—What was the design concept for this craft?

Yoshimune: Its inspiration is the Spriggan, which appears in a game called 'Spriggan Mark 2' (★ 1).

When I was designing the F-15, I had lost the manual for Spriggan Mark 2, so I drew it from memory.

Since the head parts are where I draw strong links to the real-life fighter, I designed it to give off an impression that it's connected to the two air intakes (★2) on both sides of the F-15's canopy, while also resembling the silhouette of the American Fritz helmet (★3).

I had Niθ work on the jump unit and the craft's back, from scratch. That's why the back has more information on it and looks cooler. [laughs]

—Where does the design for the massive knee part come from?

Yoshimune: In regard to those, they were influenced by things such as Superior Gundam (★ 4) and Ex-S Gundam (★ 5). I think that the knee parts are important, considering their functions as weapons.

Tank class aside, BETA like the Destroyer class are generally well armored, so there is a necessity of also giving TSFs thick frontal armor. Other than that, it can assume a posture using its knees for 4 points of support, to stabilize itself, like the one used by Scopedogs in VOTOMS. On top of that, if it's going to be made tough, it may as well be used as a close-quarters weapon.

Most of the TSFs in Eurasia, where close-quarters combat is common, have sharp, pointed knees.

In the case of US Armed Forces craft, which mainly conduct medium range bombardments, the knees are adapted as armament containers in order to carry lots of spare magazines.

While I wanted to have it similar to the Shiranui, which is its brother craft, I also wanted to differentiate them in appearance, but it would be a problem if they were so different that people didn't see the resemblance to the F-15. Though come to think of it, maybe they aren't so similar. [laughs]

—Are you really okay with saying that [laughs]?

Yoshimune: Regarding the designs for 2nd-generation craft in particular, I made sure to make the original aircraft's form fully appear in the jump unit, to make it easier to identify the source aircraft. However, the F-15's alone is different to the original. That might be one of the reasons why it feels off. [laughs]

I think about it like this: Originally, it had a form similar to the F-15 ACTV, but when the F-22's development hit difficulties, the F-15 refurbishment programs started. The E type, the result of that program, ended up with the cutting-edge jump unit that had been developed for the F-22, albeit with stealth capabilities omitted.

And after that, the retrofitting of the C type began globally.

—So you've considered the flow of the development of the real craft there, too.

Yoshimune: Well, the background concepts are nothing more than a supporting role, and normally, it's enough if only those responsible for the story know those fine details. [laughs]

I'm honestly impressed by how chivalrous your company is to collect all of these fine details and make a mook. [laughs]

In regards to the players, rather than the similarities between the detailed forms, I hope that a US Military vibe could be felt from this craft, as the craft that people would most readily associate with TSFs.

When designing TSFs, something I put the most care into was to not think in terms of a balanced theatrical cast. Just because they're supporting roles or mass-produced craft, I didn't want to make them look weak, or any less cool.

I made sure to consider each of their designs such that it wouldn't be weird for any one of them to be the protagonist craft, since I'm sure that no developer in that universe would have thought of purposely making a craft look uncool.

—I see. That's why the F-15's are popular even as A3 Figures.

Yoshimune: I think that part of it was because it was shown moving quite often, but maybe, in a sense, it was being favored by people who like mass-produced craft. [laughs]

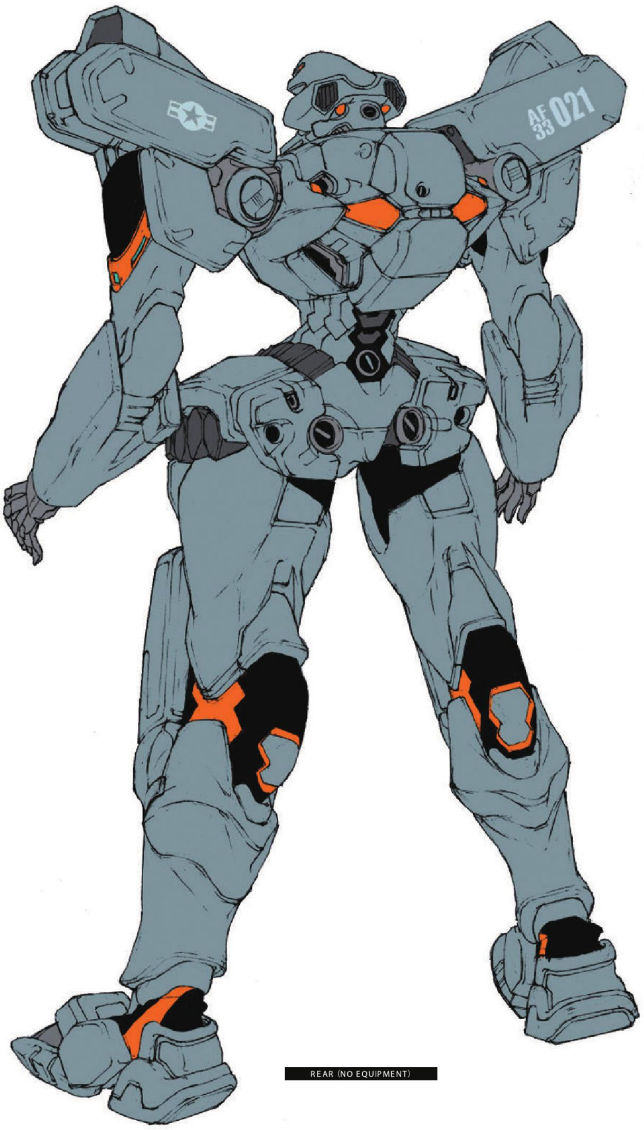
(★1) Spriggan Mark 2
A shooting game developed by Compile, and released on the TurboGrafx-16 by NAXAT in 1992.

(★2) Air intake
Referring to the air inlets for the engines in vehicles such as aircraft. These have also been adapted to character designs, such as Mitsurugi Meiya's distinctive hair style.

(★3) Fritz Helmet
The common name for the PASGT helmet, used by the US military.

(★4) Superior Gundam
A mobile suit that appears in the novel 'Gundam Sentinel', which was serialized in the monthly model kit magazine 'Model Graphix', from 1987 to 1990. It is classified as a 4th-generation mobile suit, developed by Anaheim Electronics during the Z Program, where they sought to create the ultimate Gundam. It is possible to add multiple optional parts, using the core block as its base.
The mech design was done by Katoki Hajime.

(★5) Ex-S Gundam
A refurbished form of the Superior Gundam, with a total of eight strengthened parts added and retrofitted. It was able to transform to G Cruiser Mode, its cruising form, and its combat abilities were pushed to the limits.

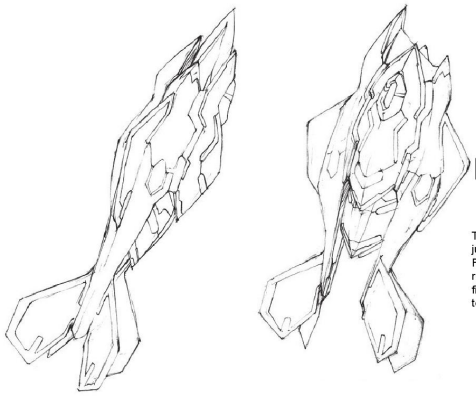


REAR (NO EQUIPMENT)

Niθ's Comment

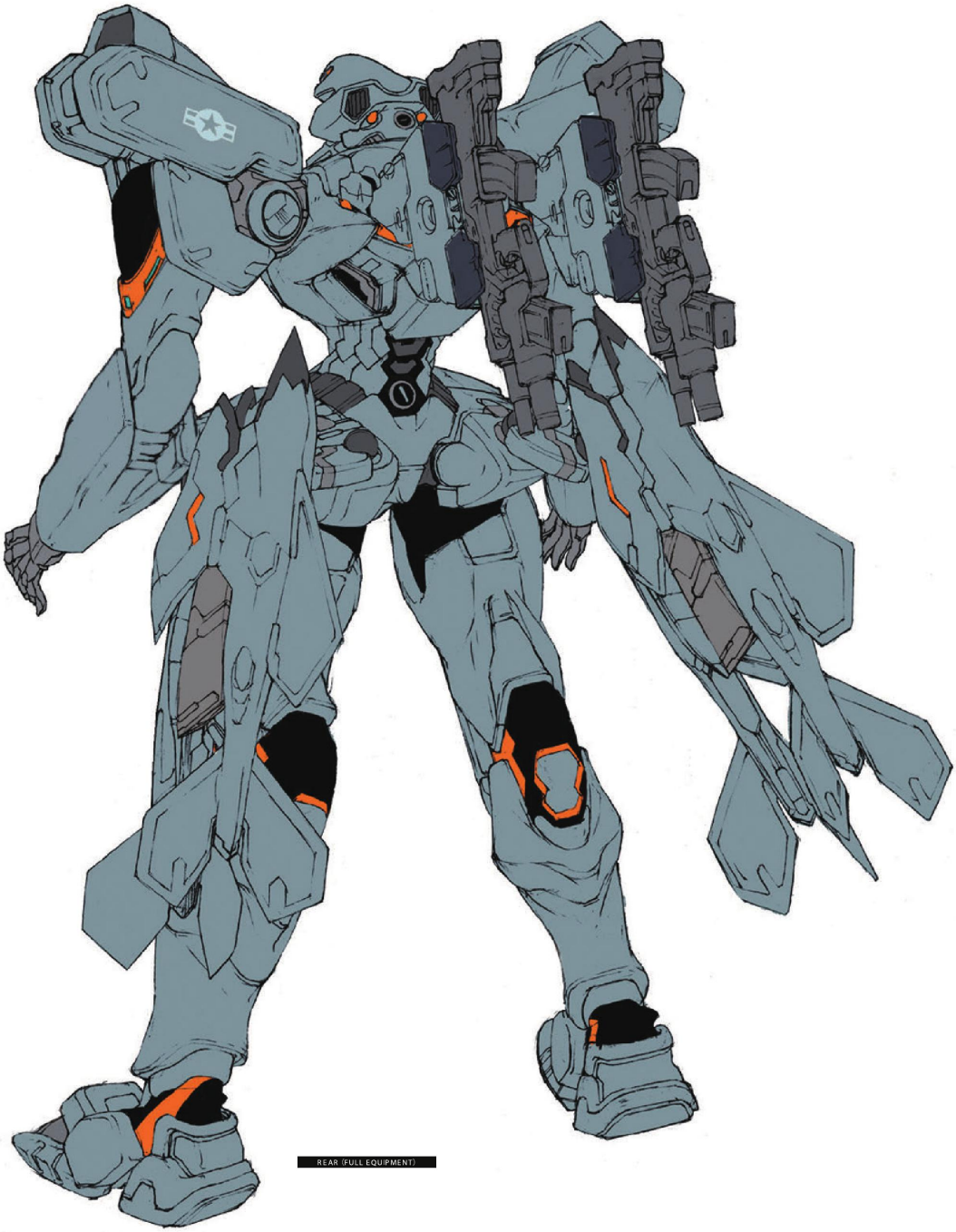
For the F-15, I only designed the rear. The front was a variation of the Shiranui that âge had completed from its fixed design.

I took care in making sure there wouldn't be differences with the front side.

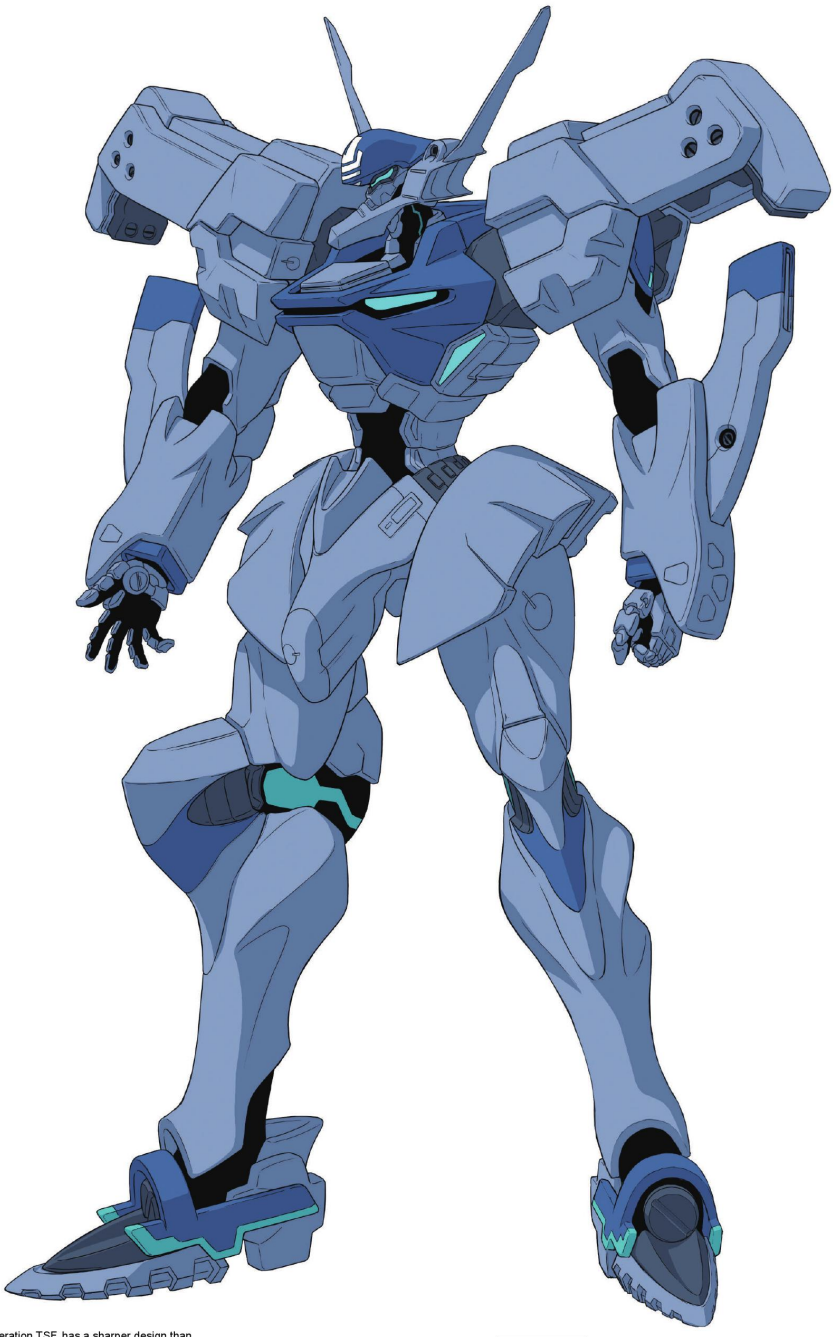


Prats & Whitney
FE100-PW-200

The jump unit of the F-15. Its spatial maneuverability, continuous jumping ability, and flight abilities are greatly improved over the F-4's jump unit. The position of the tail fin of the jump unit closely resembles that of the McDonnell Douglas F-15 Eagle, a real world fighter. Furthermore, the shape of the nozzle is flat, and it is made to be like a cutting-edge vectoring nozzle of real world aircraft.



REAR (FULL EQUIPMENT)

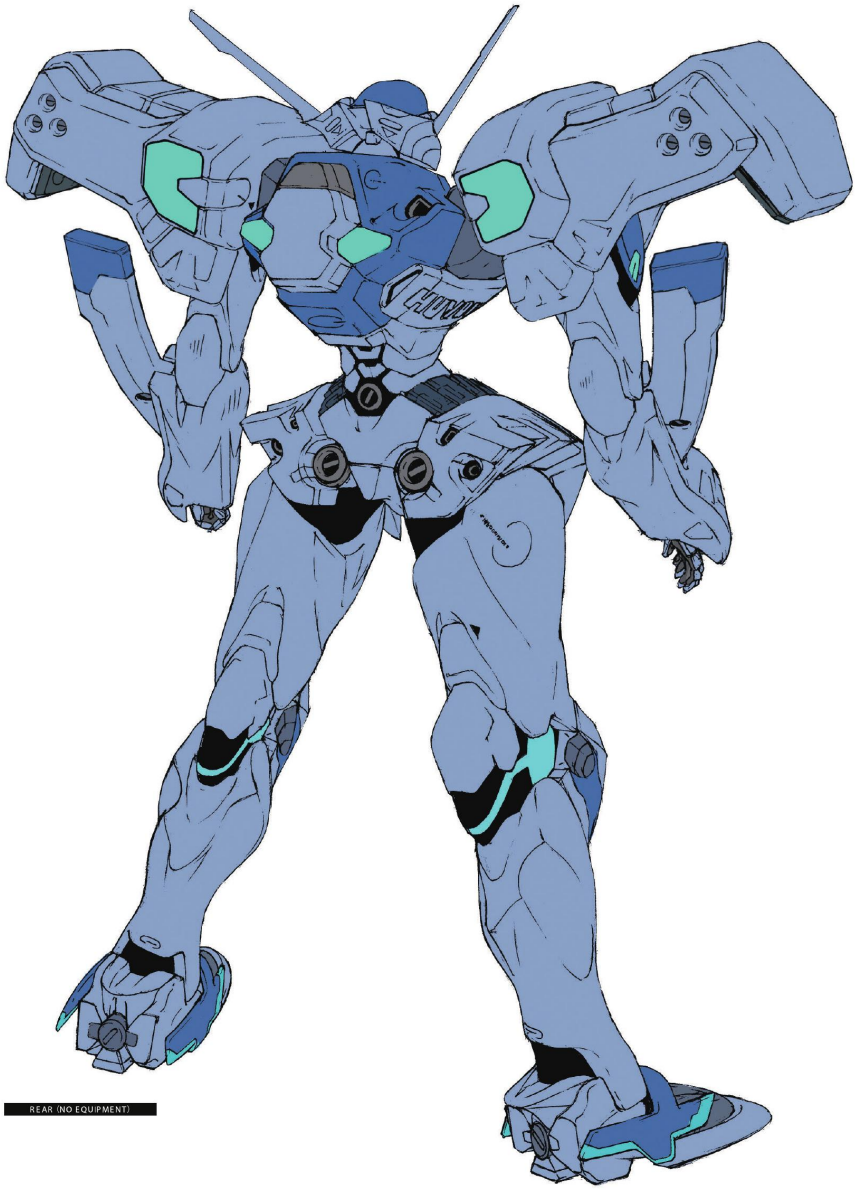


FRONT

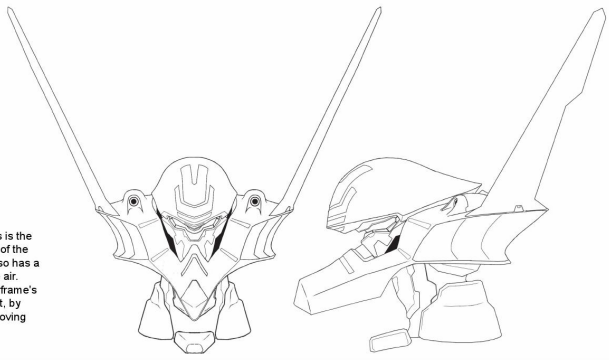
TSF Format

The Shiranui, a 3rd-generation TSF, has a sharper design than both the F-4 and F-15. In particular, the designs of its leg parts resemble legs with tight muscles, giving the entire craft a more human-like image.
While the lower half has become more sleek, the shoulder armor has continued the trend of being enlarged, and it follows the concept of increasing mobility by raising the center of gravity, which has been a trend of 2nd-generation craft and beyond.

UN Forces
Type 94 TSF
Shiranui TSF-Type94



REAR (NO EQUIPMENT)



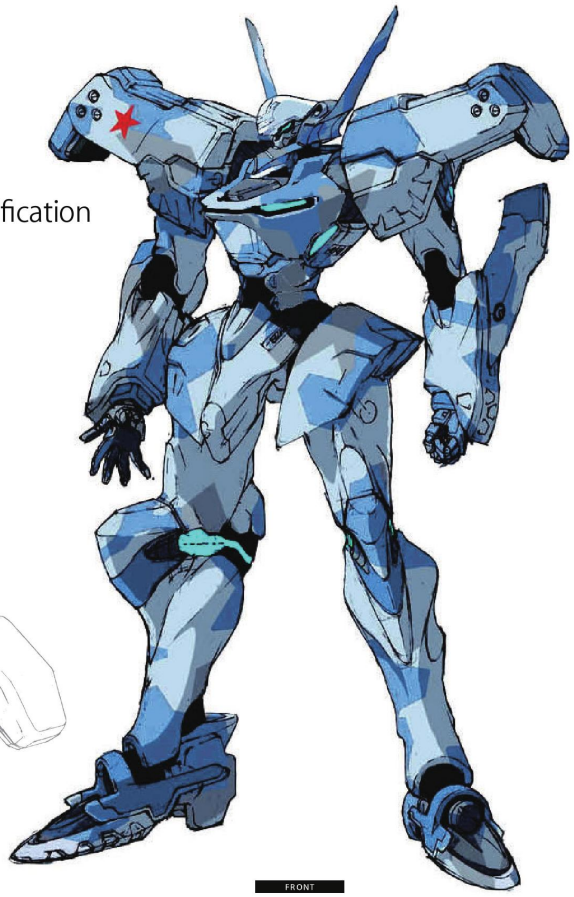
HEAD Unit

One of the main characteristics of Japanese-made TSFs is the sensor mast on the head module. This functions as one of the compound sensors located across the airframe, but it also has a significant role in airframe control while the craft is in the air. Outstanding IJF Surface Pilots are able to control the airframe's attitude with a far smaller output than using the jump unit, by deliberately moving the head module's direction while moving through the air.

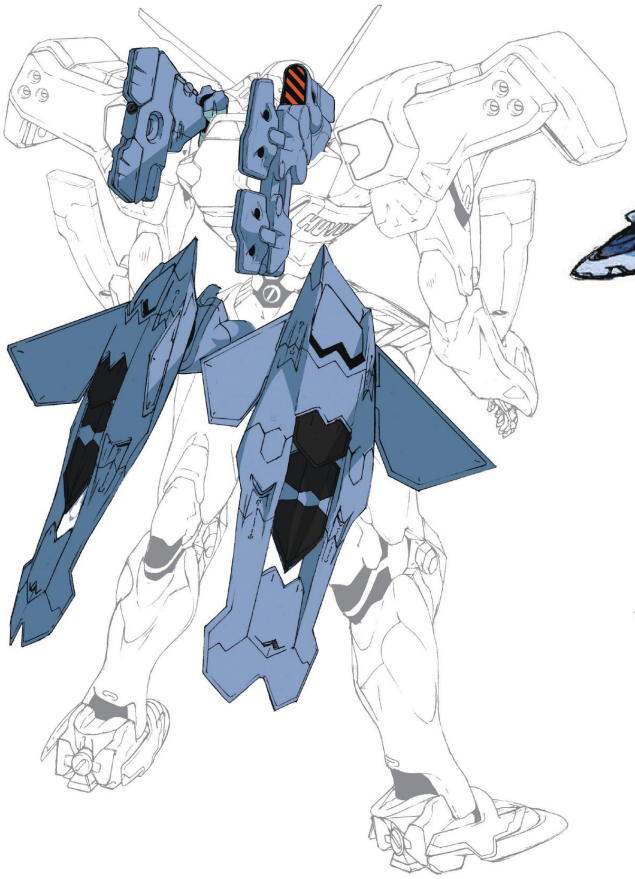
IJF
Type 94 TSF
Shiranui TSF-Type94
Fuji Tactical Fighter Training Group Specification

The Shiranuis painted in Russian Color, which appeared as the trump cards for the Coup forces during the 12-5 Incident. This Russian color scheme is used for the real world aircraft of the Russian Air Force, such as for the Su-27.

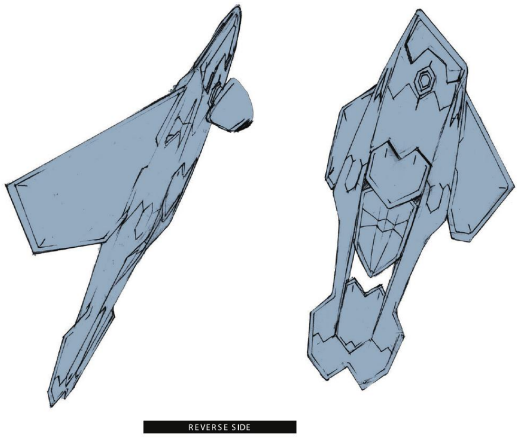
TSF Format



FRONT



REAR (JUMP UNIT)

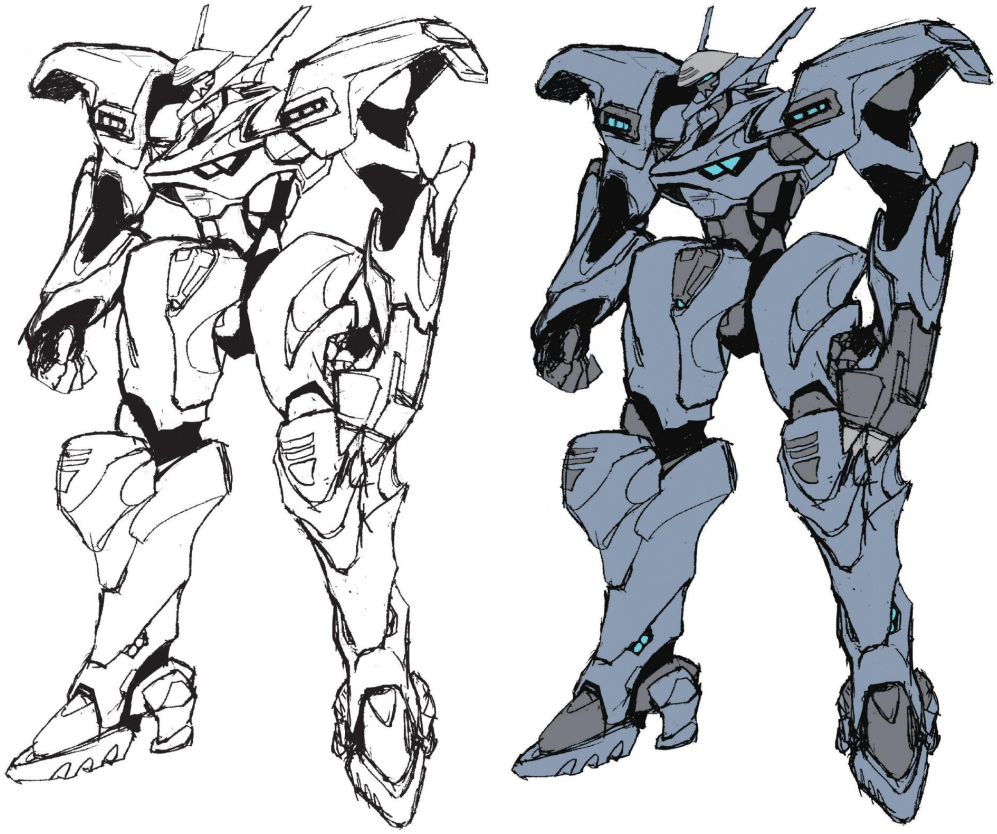


REVERSE SIDE

Type 91 Jump Unit

The Shiranui's jump unit has a flatter and sharper design than either that of the F-4 or F-15. Its main characteristics are that there are large wings placed asymmetrically on the base of the jump unit, and there is also no equivalent of a tailplane on the end.

Shiranui Design Concept



Koki Yoshimune's Interview

—In a sense, this is the 'protagonist craft' of Alt.

Yoshimune: The F-2, which was revealed before the US interfered, was the visual reference, and overall, I was aiming for a silhouette like something made by Oobari(★ 1).

—In the real world, the F-2 was planned to be purely domestically developed as the FS-X (Next-Generation Support Fighter), the successor to the JASDF's F-1 fighter. However, part way through, it became a collaborative development with the US, and ended up being based on the F-16.

Yoshimune: If there was to be a fighter called the F-3 in the future, it would probably be the Takemikazuchi. [laughs]

Eventually, the real mainline fighter, based on the 'Shinshin' (★ 2) will... Well, it doesn't exist. [laughs] Anyway, I've made sure to absorb designs of fighters that were models for the TSF into their various parts.

The F-2 had two vertical tails before it was changed, and that's related to how the Shiranui has two large sensor masts.

Its forehead, or rather, the sensor cover, is the canopy.

—I see. It's certainly similar to the canopy shown on the F-2's concept diagram.

Yoshimune: Anyway, the Shiranui is the center craft for all TSF designs, so when I designed other craft, I based them off the Shiranui's design and looked into things such as making them flashy or plain, 1st or 2nd generation, and so forth.

—I see. So it's a starting point for the other TSF designs.

Yoshimune: That's right. If I were to use 'Space Battleship Yamato' as an example, the Yamato itself is special in a design sense, so it's like the Takemikazuchi, and so it can't be treated in the same way as other craft. But then there was the Main Battleship of the Earth Defense Force, which acted as the base, where designs thinner than it would become destroyers and cruisers, whereas those bulkier would become the Andromeda.

Sorry if that's a bit hard to understand. [laughs]

★ 1: Oobari Masami
An active animator, mech designer, and director, from Studio G-1NEO. He is known for his extremely unique forms, in regards to mech design. His famous works include 'Dancouga - Super Beast Machine God', which he did the mech designs for, and 'Fatal Fury: The Motion Picture', which he directed.

★2: Shinshin
The common name of the development program for a new aircraft by Japan's Ministry of Defense Technical Research and Development Institute, with Mitsubishi Heavy Industries as the main contractor. It is a purely domestic, advanced technological demonstrator, with a domestically made engine loaded into a domestically made airframe. Its policy seeks to have it reach practical use by around 2017-2018.

Niθ's Comment

I normally get told that the lines on the front and back sides of my designs don't match up, but for the Shiranui, it was particularly obvious... The rear view was too massive compared to the front. How embarrassing.

I thought I could increase the number of parts on the waist, but as I started to consider how the jump unit would be attached, I left the waist a bit sparser.

The 'bare mech' parts, such as the docking points on the waist and jump unit really resonate with middle aged men like me.



TSF Format

FRONT

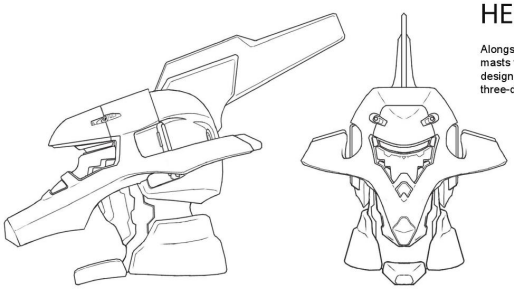
As the Fubuki has appropriated the Shiranui's parts, it shares many similarities with the silhouette of the body's trunk. However, as it is a training craft, several parts, such as the shoulder armor, have been simplified.

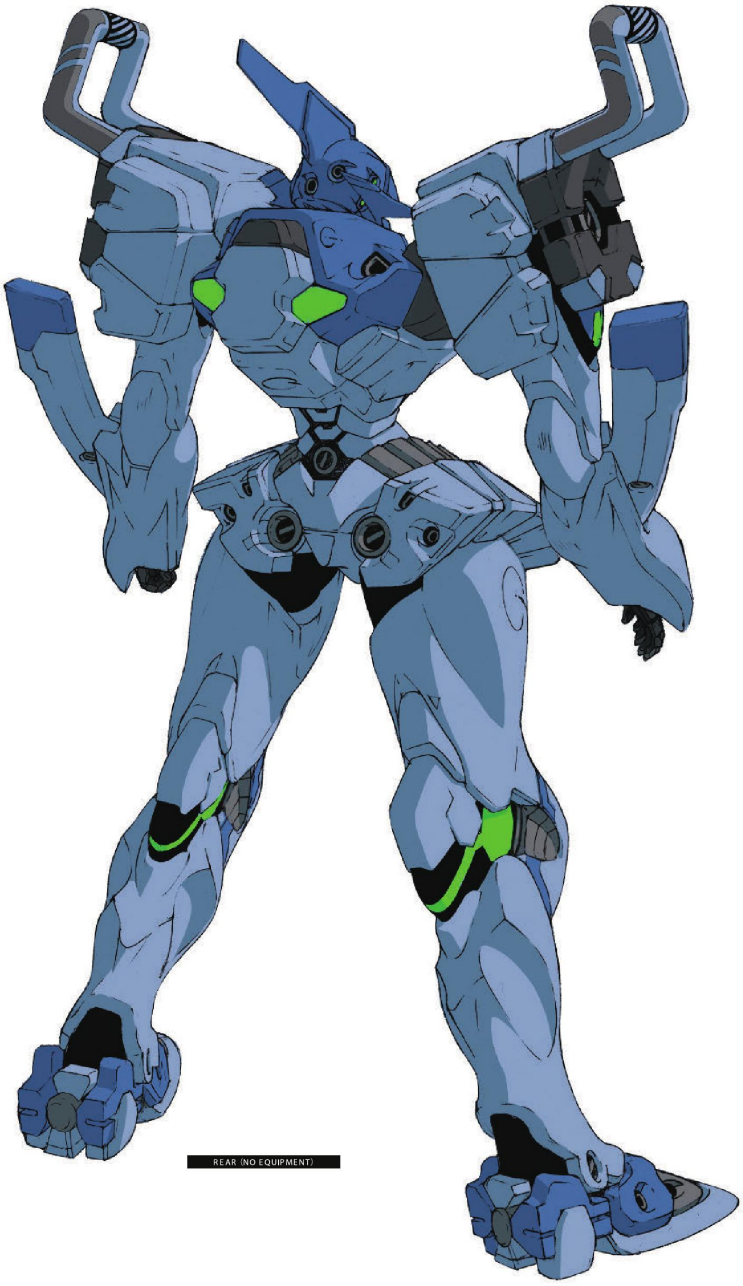
UN Forces
Type 97 TSF

Fubuki TSF-Type97

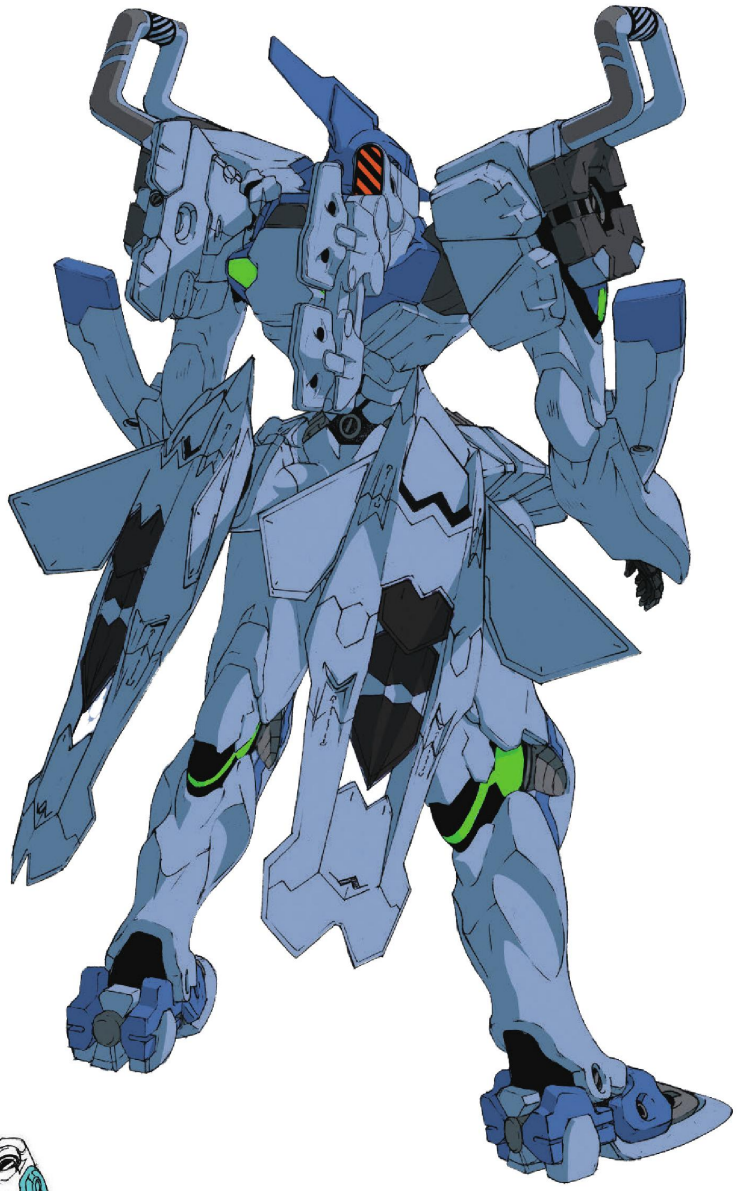
HEAD Unit

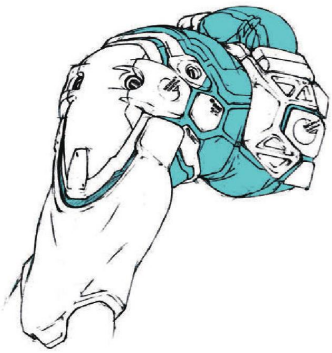
Alongside the distinctive head module sensor cover, its sensor masts were simplified into a single one. Overall, it has a simpler design, compared to the Shiranui, which is composed of complex, three-dimensional curves.

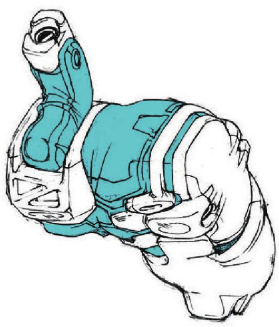




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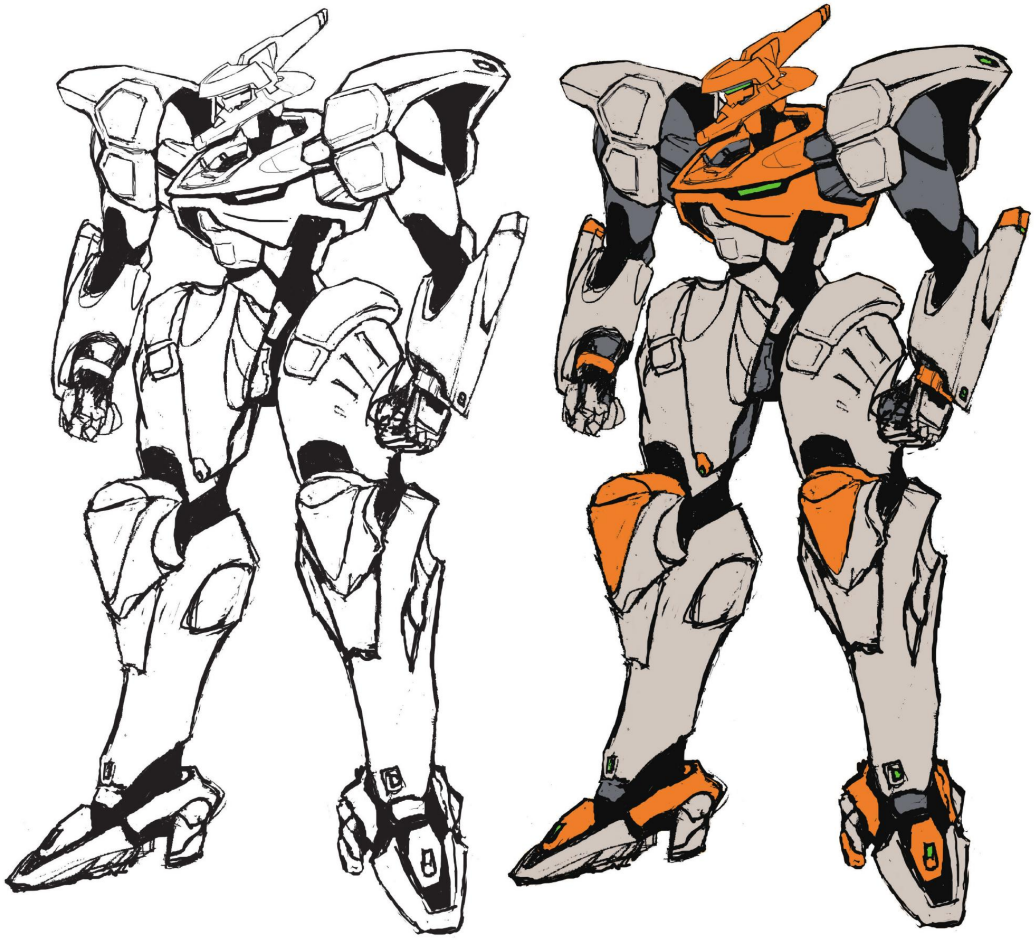


SHOULDER

The Fubuki's shoulder with its armor removed. The sub-arm can be folded and stored, and several plates are placed in a composite manner, to protect the internal structure, much like the scale mail of the middle ages. During the scene in which the 1200mm OTH cannon was fired in Muv-Luv Unlimited, the right shoulder armor was removed to avoid interfering with the prone position.



Fubuki Design Concept



Koki Yoshimune's Interview

—Next up, I'd like to ask about the Fubuki.

Yoshimune: I had Niθ refine this one for me too, but what I think is amazing about Niθ is that he can make designs that ignore articulation.

The design of having the back of the knees protrude, which has now become part of the TSFs' identity, was Niθ's invention. Normally, you wouldn't be able to think of that if you were thinking about the logic of joints and movement.

For a moment, I was unsure, after considering how that would work out when being turned into figures, but I decided on having an amazingly unique edge that wasn't featured on robots in other works, rather than worrying about hypothetical action figures, which may not even have materialized in the first place. Based on this design image, I made the knee's structure a reverse quadruple joint (Refer to the Shiranui section in Chapter 3).

Not only is Niθ a peerless mech designer, he's also an excellent 'ideas man'.

—I see. So the knee's structure became a concept to be shared across all TSF.

Yoshimune: Yes. With A3 figures, we couldn't recreate it, due to problems with the size and toughness, so the knee parts are attached to the side of the tibia, but in reality, they're secured by an independent arm.

As a side note, TSFs are integrated with artificial muscles made of carbon fiber, called carbonic actuators, which undergo changes in volume when their molecular arrangement is changed by electric currents.

The background concept for carbonic actuators is that they're placed across a TSF's body, and that their tension helps maintain balance, and can reduce the impact of sudden movement or firing of large caliber rounds.

—Is that stuff on the shoulder to make it seem more like a training craft?

Yoshimune: Its shape was also proposed by Niθ, and it was something for rookie pilots to help grasp the width of the craft, or rather, to get a feel of the airframe.

His taste—to add these boorish shoulders to the sleek design. Isn't that amazing?! And on top of that, he added that frame, since it's a training craft. When I saw the finished design, I was dumbstruck. [laughs] It really gives off that feeling that they cut corners to save costs, making it seem like a training craft.

To tell the truth, I had an experience where I thought of making that frame the same width as the Shiranui's, but Niθ's balance on the craft was so skillful that if I adjusted it, it would look uncool, so I stopped. [laughs]

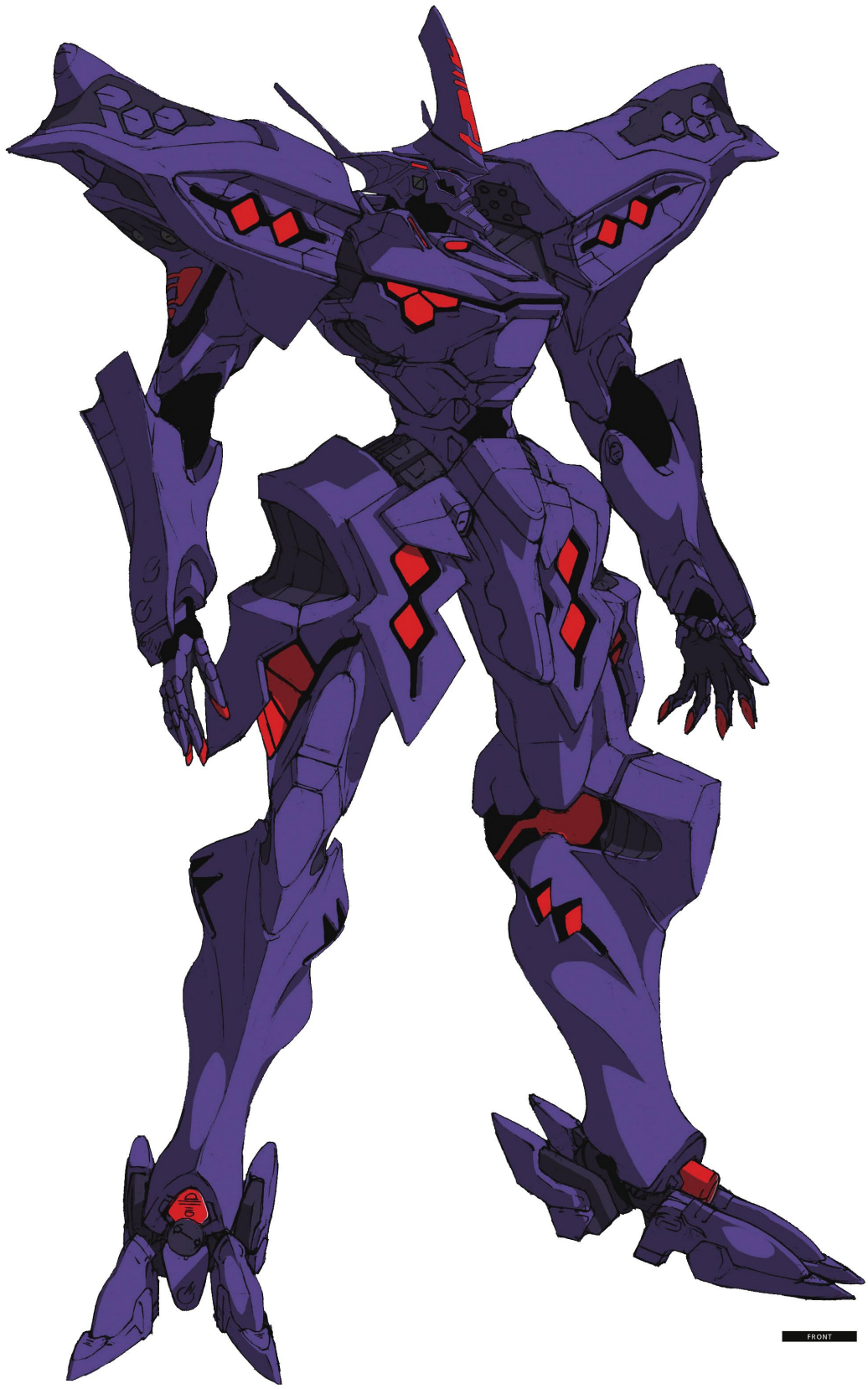
The fact that there's only one sensor mast on the head module is also a staple. If I were to say it in Valkyrie terms, it'd be the A type. It's an easy to understand symbol, with the Fubuki having one, the Shiranui having two, and the Takemikazuchi having three. It's like the more horns there are, the stronger it is.

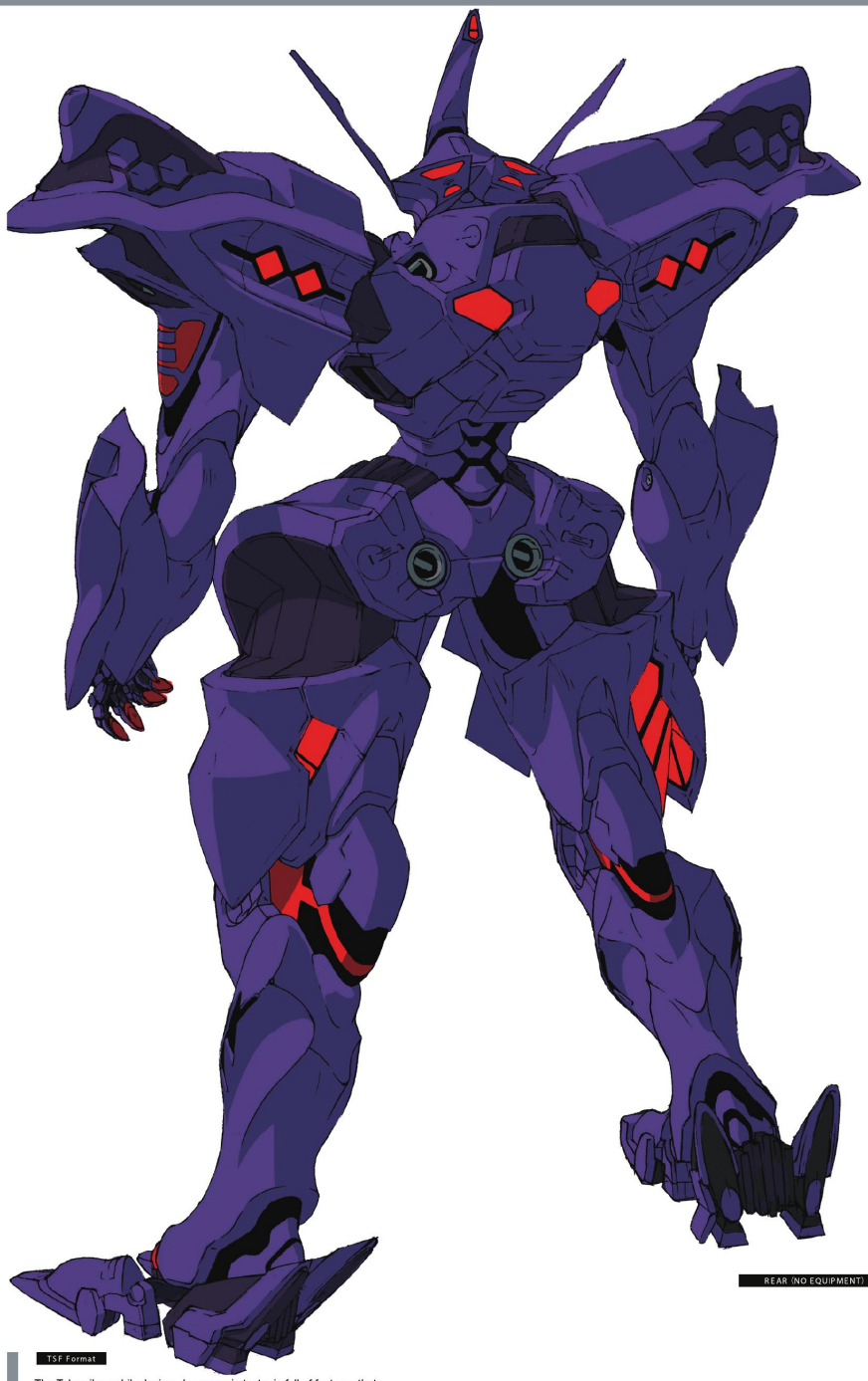
But for some reason, the Gekishin has four. [laughs]

Niθ's Comment

During the process of designing the Fubuki, I was thinking that I got too greedy with adding parts in and its design ended up feeling uncoordinated.

However, when it was actually finished, it actually ended up feeling like a hastily made weapon, so it might have been a good thing in that it was able to convey some of the hopelessness in Alt's war situation.


FRONT

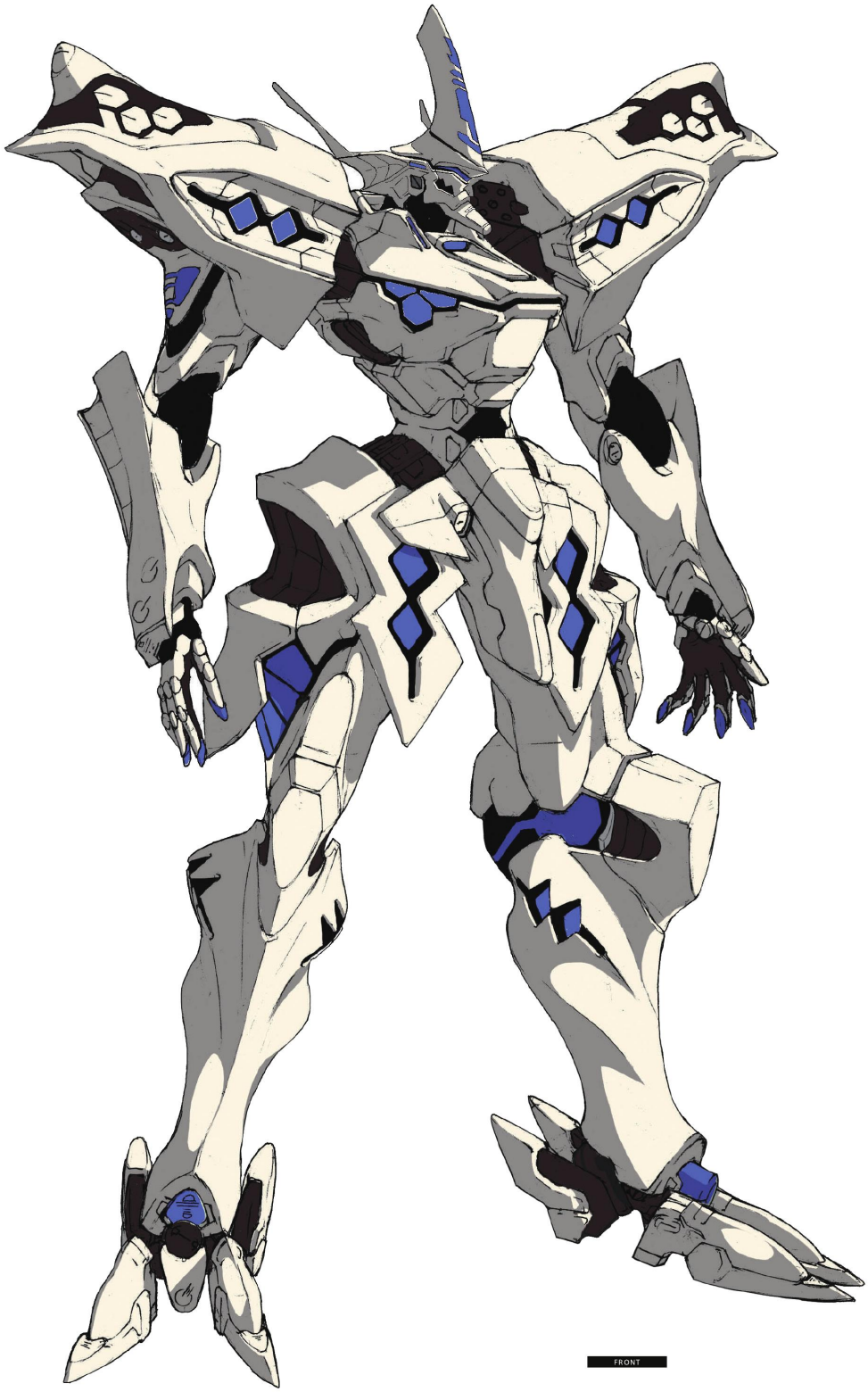


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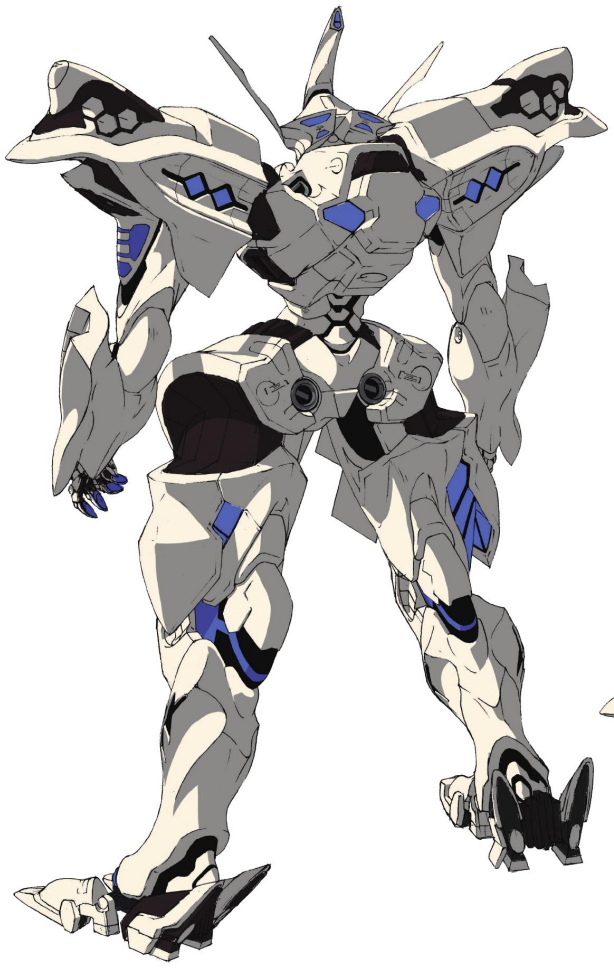
TSF Format

The Takemikazuchi's design, Japanese in taste, is full of features that serve little practical purpose, and are mainly aesthetic. Its main characteristic is that it gives an overall impression of an armor-clad warrior and Shintoism, due to features such as the horns on its head module, which resemble the horned helmets of a samurai, or an eboshi. The diamond shapes on the shoulder armor and the front's waist armor also resemble gohei.

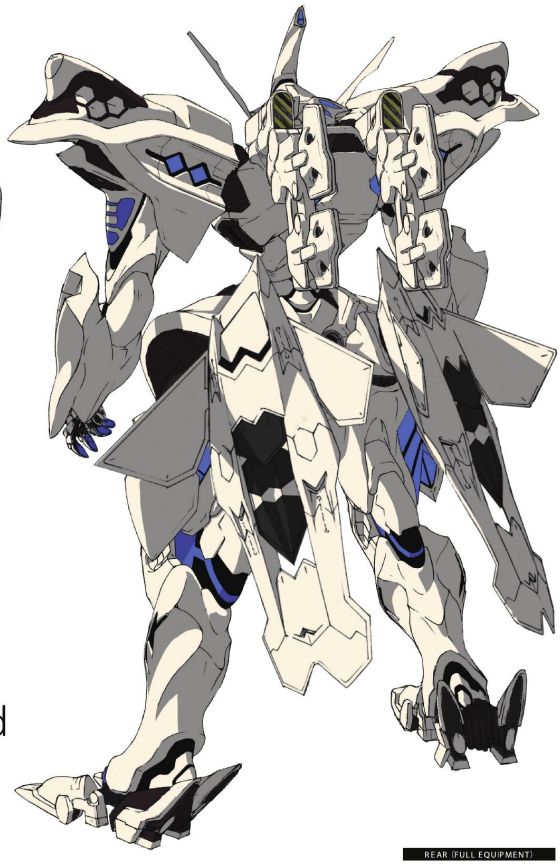
Imperial Japanese Royal Guard
Type 00 TSF
Takemikazuchi TSF-Type-00R



FRONT



REAR (NO EQUIPMENT)



REAR (FULL EQUIPMENT)

TSF Format

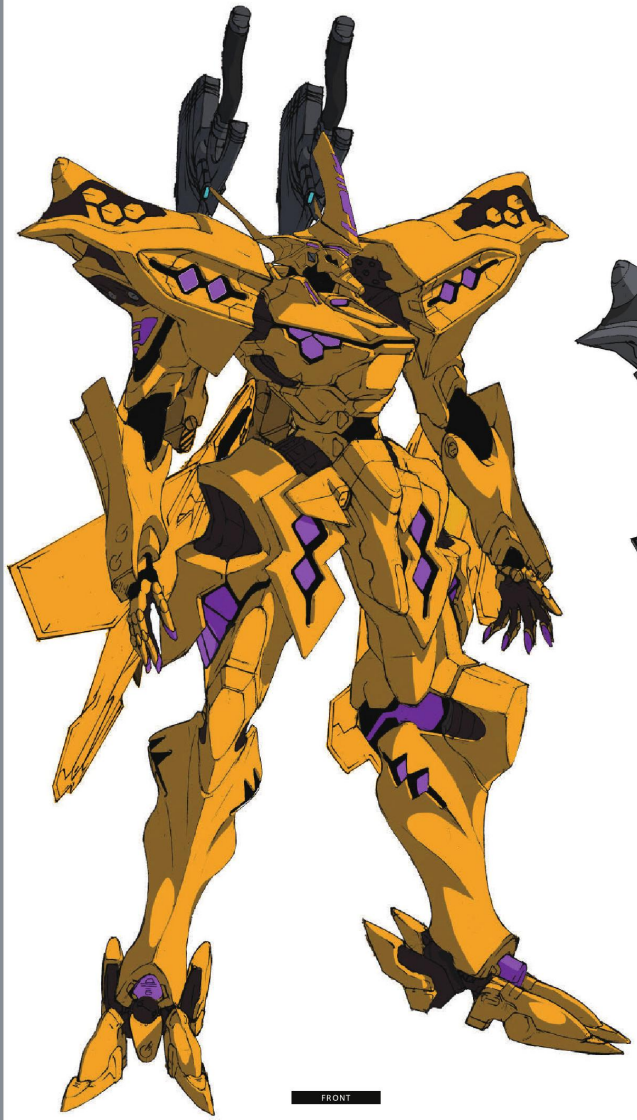
The concept image of the Takemikazuchi Type 00A, illustrated by Niθ. Its background concept is that it is only given to Surface Pilots who are descendants of warrior houses. During the game, it appears as the craft piloted by 2nd Lieutenants Kamiyo, Tomoe, and Minagi.

Imperial Japanese Royal Guard
Type 00 TSF
Takemikazuchi
TSF-Type-00A

Imperial Japanese Royal Guard
Type 00 TSF
Takemikazuchi
TSF-Type-00C

The concept art of the Type 00C, also by Niθ. Its sensor mast has been simplified, and the head module is significantly different to the other variations.

TSF Format



FRONT



FRONT

TSF Format

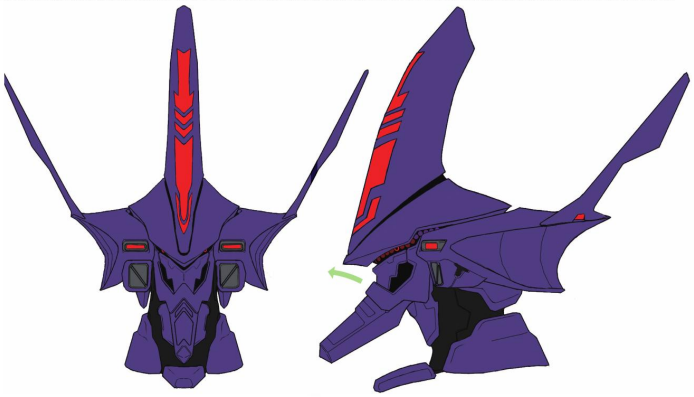
The concept image of the bright yellow Takemikazuchi Type 00F, illustrated by Niθ. The bright yellow Takemikazuchis are positioned between the red and white variants in terms of prestige, and they are craft given to descendants of Fudai houses. During 'Muv-Luv Alternative Total Eclipse', one makes an appearance as the craft piloted by Lieutenant Takamura Yui, a Royal Guard Surface Pilot.

Imperial Japanese Royal Guard
Type 00 TSF
Takemikazuchi TSF-Type-00F

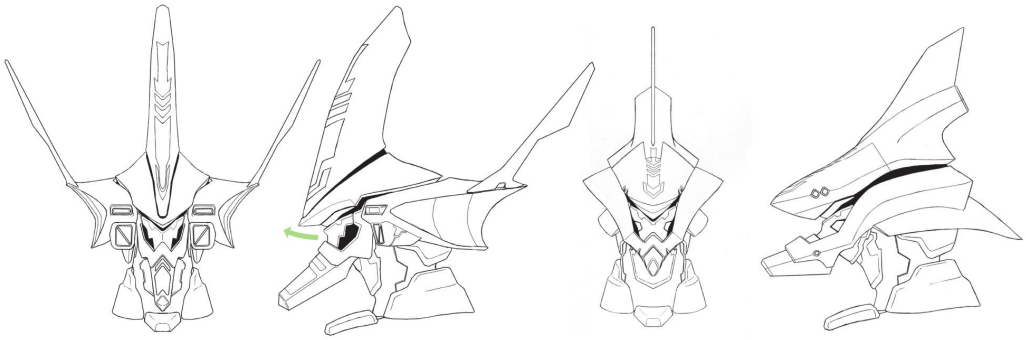
The shape of the head part

HEAD Unit

When comparing the head modules of the Type 00R (the purple and blue variants) to the Type 00F (red, yellow, and white variants), the Type 00R has had its infrared sensor made visible, making it look like it has two eyes, whereas the Type 00F's entire visor emits light, making it look like it only has a single eye.
Furthermore, the shape of the canopy above each main camera is different. On the Type 00F, it is curved outwards, but on the Type 00R it is curved inwards.
Also, the sensor mast on the head of the Type 00C, the black variant, has been simplified.

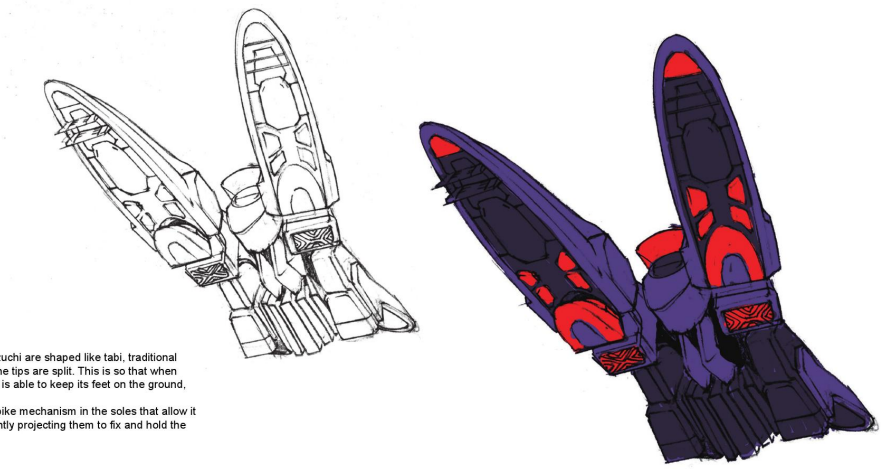


Type-00R



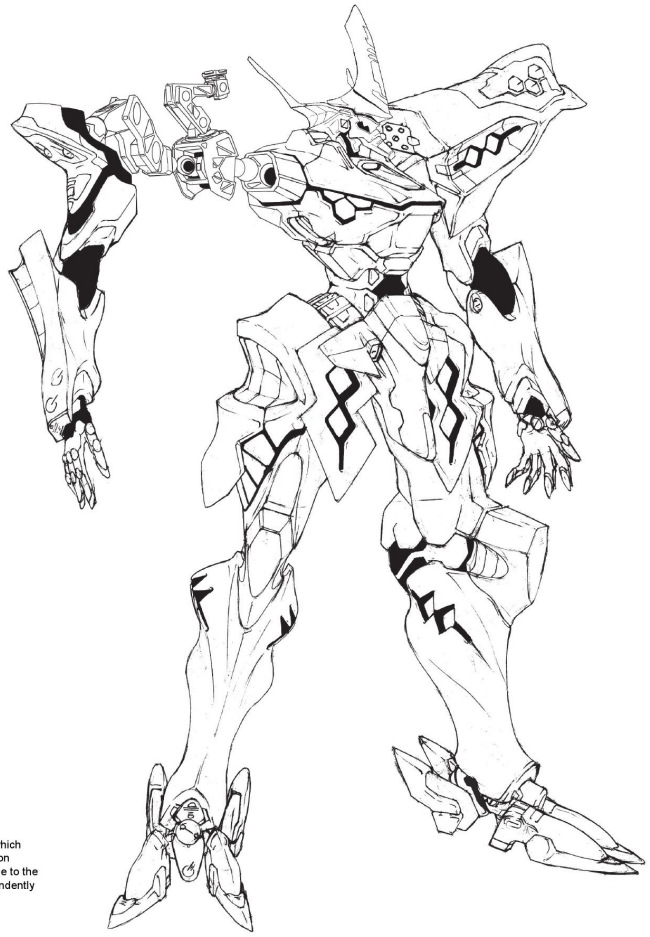
Type-00F

Type-00C



LEG

The feet of the Takemikazuchi are shaped like tabi, traditional Japanese socks, where the tips are split. This is so that when wielding a melee blade, it is able to keep its feet on the ground, regardless of terrain.
Furthermore, there is a spike mechanism in the soles that allow it to secure its grip by instantly projecting them to fix and hold the craft to the ground.



SHOULDER

A structural diagram of the arm's joints and the sub arm, which supports the armor on the shoulder. It has a range of motion beyond that of a human's, due to its multiple joints, and due to the sub arm, which allows the shoulder armor to move independently and avoid interfering with the main arm's movement.

Koki Yoshimune's Interview

—What did you think about the design concept for the Takemikazuchi?

Yoshimune: I asked for the Takemikazuchi to give an overall vibe of Nagano's (★ 1) mechs.

The Gekishin was a Nue mech, the Shiranui was an Oobari mech, and the Takemikazuchi would resemble Nagano. The period in which each TSF was rolled out would simply follow the real world transition through mech designs. [laughs]

When I was in high school, I was stunned by Nagano Mamoru's L-Gaim. I was surprised that although its silhouette looked heroic, there was special consideration put into its materials and internal structure.

I immediately became engrossed in adding things to my own designs, like articulated joints and an internal structure that would compress when being hit, to absorb the impact.

—The Takemikazuchi's design is different to the others, isn't it?

Yoshimune: The apron on the sides of the waist are based on the paper (gohei) attached to the sacred ropes at shrines. That's why the square parts that tessellate are slightly misaligned. Overall, it resembles an oni or an armor-clad warrior. The face also resembles a shark and armor.

The nails on the fingers are carbon blades like in Patlabor (★ 2), on Zero (★ 3).

Well, if you did the same thing as Zero does to something like a Destroyer class, the nails would snap. [laughs] But they're enough to brush things off like a Tank class that has latched onto the craft.

—Is there any reason in particular for just the Takemikazuchi to have a built-in blade, as opposed to other TSFs, which have knife sheaths?

Yoshimune: There's actually a design that the blades pop out from the elbow in a reverse-V shape.

Although it's not at the level of 'Dynamite Kid', I wanted its style to be that its entire body has sharp blades. In short, I wanted to make it have many concealed blades.

The carbon blades on the shin and forearm armor of the Su-37 were actually originally part of the Takemikazuchi's concept.

The fingertips, shins, forearms, the eboshi-esque sensor mast; any part with a sharp edge would be a carbon edge. That's why it's light and has a high price and maintenance cost.

Since Onda Technological Research Institute was involved, the entire body would be constructed with carbon, like an F1 machine [laughs]!

—I see. That sounds reasonable. Though, you haven't talked about those design concepts much. What is the reason for that?

Yoshimune: To be frank, it's because the illustrations and production didn't make it in time. [laughs]

Since the main place where the Takemikazuchi would be shown in action would be at the end of the game, in Operation Cherry Blossom, the task of preparing additional standing illustrations for them was left for later. However, by the end of development, there wasn't enough time or resources left to add them.

In exchange, there were plenty added for the Shiranui. [laughs] Anyway, we only had a few variations for Takemikazuchi images, so if we showed it in combat, the fighting tended to become quite repetitive, making it difficult to produce scenes with them. [laughs]

The forearm's blade, and carbon edges, were expected to be used in combat during the game, but since I couldn't show them with illustrations, I didn't mention them in terms of background concepts.

Though it was more like I had been developing the game for seven whole years, so by the end of that, I had almost completely forgotten about them. [laughs]

And when the plan for 'Total Eclipse' was set, I thought that the Takemikazuchi had already established itself as a character, so I announced the blades as being characteristic of the Su-37 and craft made after it.

—Are there any other concepts that got buried like that?

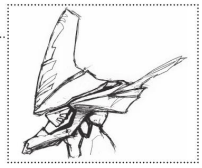
Yoshimune: Originally, there was a design concept that only virgins could pilot it. [laughs]

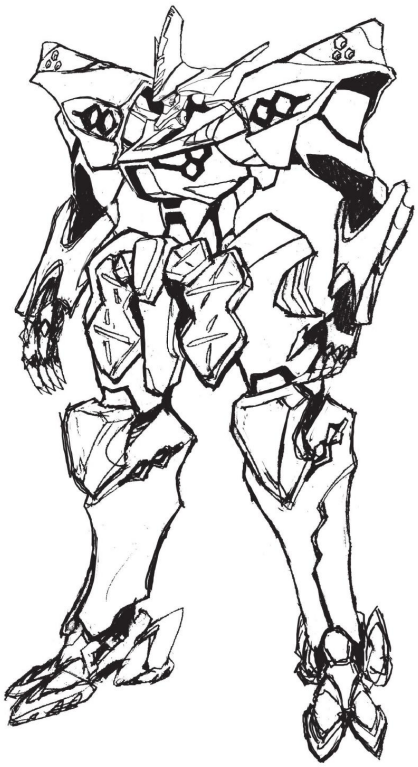
—What?! How would the machine determine that? Don't tell me it's done with a camera or something...

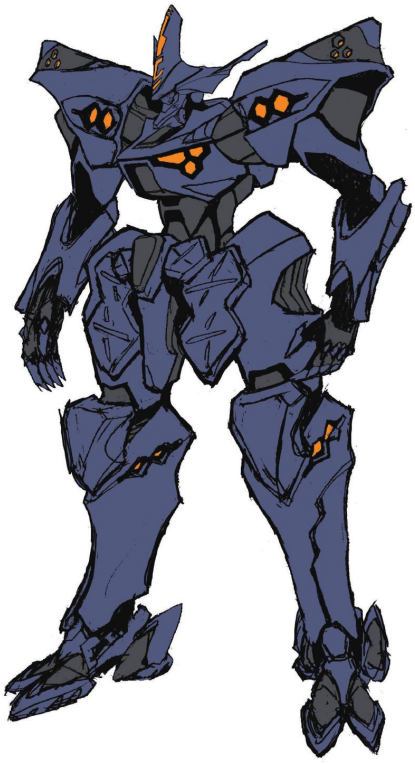
Yoshimune: No, no! [laughs]

To be precise, the custom was that 'you can't pilot it'. I was thinking of giving it a concept where only virgins who had received a purification ceremony at places like the Izumo Taisha or the Ise Grand Shrine could pilot it.

Takemikazuchi Concept Design







But when I thought about it, both of those had been destroyed by the BETA, and most importantly, I thought that it would be a problem if no one could pilot it anymore, if they had all lost their virginity to Takeru. [laughs] The reason why the Royal Guard's military uniform has a Shinto priest's design is because of that.

—Speaking of the Royal Guard's military uniform, does Yui have one too?

Yoshimune: Of course. That's part of her concept design; hers is yellow.

—Are there any other customs related to the Takemikazuchi?

Yoshimune: There was one where the Takemikazuchi's armor was hand made by blacksmiths who molded carbon. [laughs] Like a super car, where a craftman poured hard work into it to make it. [laughs]

Although I decided to drop that in the end, since it was just too much. [laughs]

—Can you tell us about the design of the C Type Takemikazuchi?

Yoshimune: The C Type is the standard variant of the Takemikazuchi, so whenever a Takemikazuchi is mentioned, it's normally referring to this one. [laughs] That's why I took care in making a design that looked like a successor to the Zuikaku.

And on top of that, I added that man-eating shark vibe, which is common across all Takemikazuchis. The glass sensor covers on the F and A types were proposed by Niθ.

I had finished a draft, expecting to use a glaring eye from a back slit, like L-Gaim Mk-II, but I was given a cool design with a glass eye, so I adopted it for the F and A types, and asked for the R Type to be redesigned. With several suggestions like this, even for other craft, the world concept surrounding the mechs greatly expanded.

I'm really grateful for Niθ.

★ 1: Nagano Mamoru
A mech designer and manga artist. He took his first role as a mech and character designer in 'Heavy Metal L-Gaim' at the age of 23. After that, he began to serialize the manga 'Five Star Stories' in Newtype magazine. The manga added new backgrounds and settings to the L-Gaim world. He is known for his extremely original mech designs.

★ 2: Mobile Police Patlabor
A manga by Yuuki Masami that was serialized in Weekly Shounen Sunday. It would later be turned into an anime series, and spawn two films, 'Patlabor: The Movie' and 'Patlabor 2: The Movie', both of which were produced by Oshii Mamoru. The mechs were designed by Izubuchi Yutaka.

★ 3: Type-Zero
A craft that makes an appearance in 'Patlabor: The Movie'. The toughness of its manipulators was greatly strengthened and its fingers could also act as weapons.

Niθ's Comment

Once I had finished the Shiranui and Fubuki, I had finally gained a proper grasp on the direction this work was taking. So by the time I reached the Takemikazuchi, the way the design had been organized was starting to become quite stable.

What do you think? Don't you think that all of those concepts were organized in a really good way? During the initial stages of development, I didn't work on coloring, so since I wasn't involved, I wasn't aware of it, but there really are a lot of airframe colors for this craft, aren't there?

It looks like if the color changes, the overall impression changes too. Colors are an important part of design.

As a side note, I think that when I was designing it, I was considering the shining parts on the outer edge of the thighs to be heat waste fins.

Since there were lots of streamlined decorations, it was difficult to draw the standing illustrations. But I think that it would be even harder to turn this into a 3D figure.

I'm always giving Zoukei-Mura trouble.

Koki Yoshimune's Interview

—The 66th Battalion's Demonstration of Cutting-Edge Craft This is a popular craft, isn't it?

Yoshimune: I had Niθ design this craft's back, too. That's why its back is really amazing! Those composite, three-dimensional, jagged lines wouldn't be possible for a normal person! [laughs] It's just too amazing.
Niθ also refined the fronts of the F-15 and F-22 as well, so they ended up as more stylish mechs. [laughs]

—I feel like I'd like to see that too. What's the root of the design?

Yoshimune: The inspiration for the Raptor's head is based on Gyaos from 'Gamera'. Gyaos and Hakaider are what come to mind if you think of a ruthless rival. [laughs]
The eyes are compound eyes like Evangelion Unit-02 and Briareos (★ 1). I feel like I've been able to differentiate it from other TSF, in the sense that a close-up shot would fill up the screen with lots of inorganic, single eyes.
Anyway, in order to give it a different impression to things like the Shiranui and Takemikazuchi, I've included those stealthy, jagged lines across several parts. For its form, I frequently used diamond shapes frequently without putting much thought behind it, but I'm certain that in reality, this would show up on radar.
It's more like a feint, a make-believe stealth. [laughs] Even so, I found this design quite difficult. Much like the real Raptor, I wanted to value the feeling of it not looking strong at first glance.
It's hard to draw, so it was poorly received by graphic artists, but now that some time has passed, I think that it's quite good. [laughs]

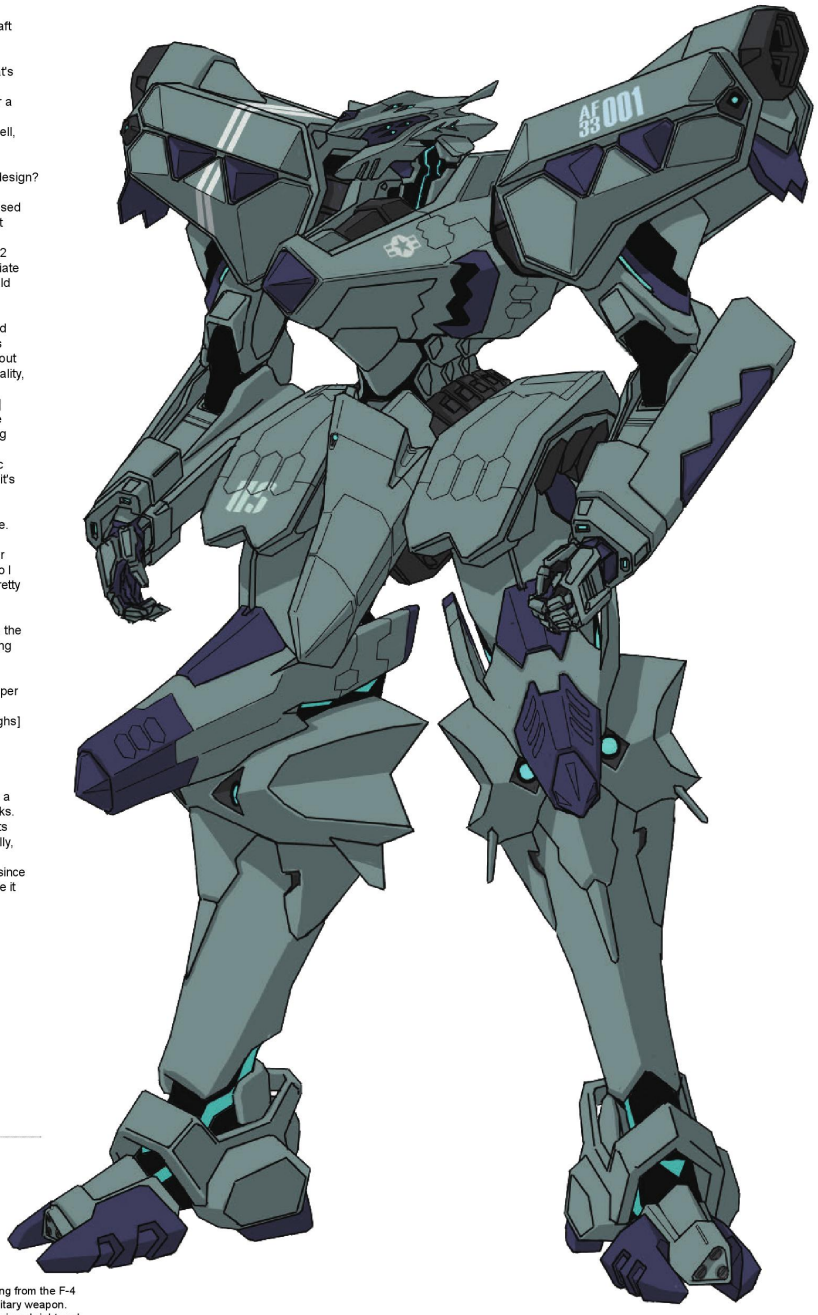
—The volume of the knees on this craft is quite impressive.

Yoshimune: When I first saw things like the real life Raptor and YF-23, I was amazed that things like those could fly, so I wanted to give that same impression with the knees. I'm pretty sure that that doesn't make much sense though. [laughs]
And then I tried to emphasize a sense of a forward vector, in relation to the craft, by creating a triangle with the chest's protrusion and the knees, even though something like that was out of my league.
I'm not in a position where I can act boldly about designs, but when I look at the designs of things like super cars, I feel that it's important to consider force vectors. Though, in practice, I haven't been able to do that. [laughs]

—I guess that because things like that were considered properly, the A3 ended up looking really cool.

Yoshimune: The F-22 ended up looking really good as a figure. That's thanks to the talent of the sculptors at Volks.
Generally, because it's in 2D, there are plenty of parts that are glossed over to make it look better, but thankfully, they managed to bring it all together very well.
I'm always grateful for the sculptors from Zoukei Mura, since there's a lot of things I figure out for the first time, once I see it in 3D. Like, "Oh, so that's how this part is!".. [laughs]

★ 1: Briareos
A combat cyborg that appears in Shirow Masamune's manga 'APPLESEED'.

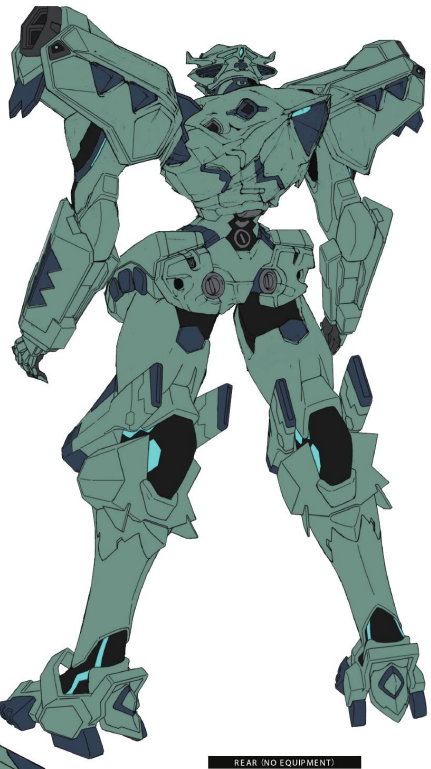


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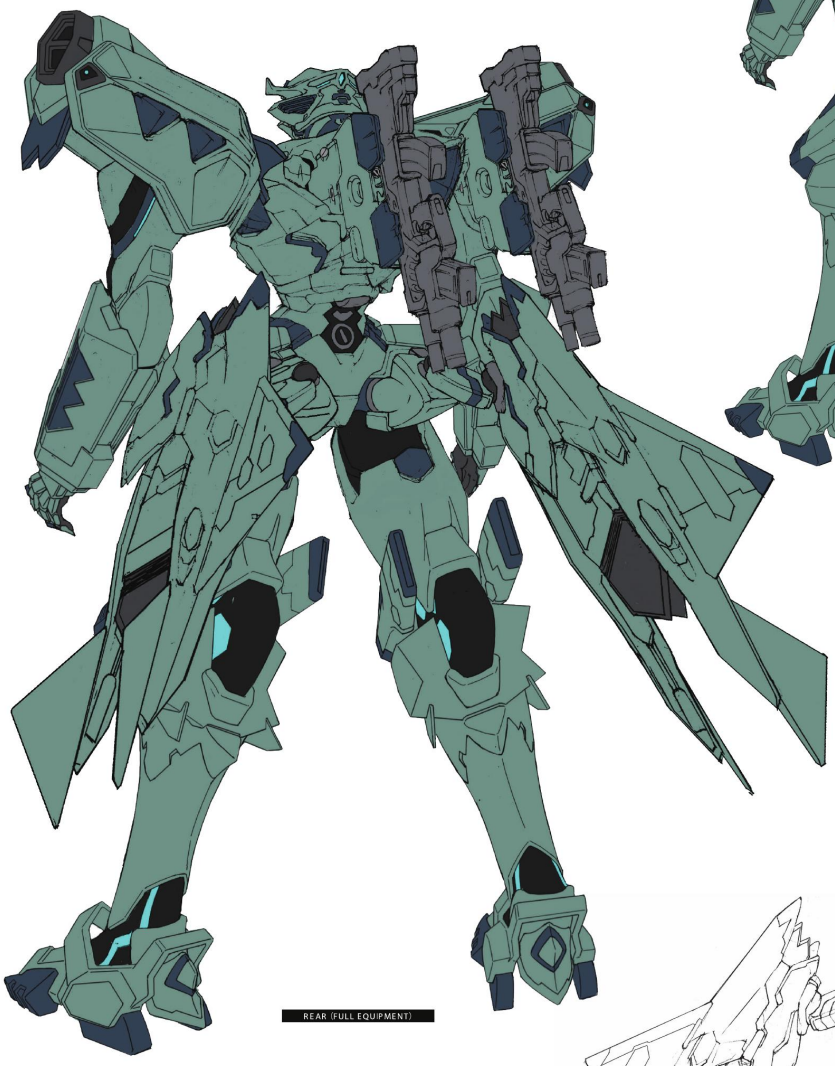
TSF Format

The F-22's design pushes the straight-line design, continuing from the F-4 and F-15, even further. It has a strong image of being a military weapon. As camouflage has no effect on the BETA, TSFs are often given bright and comparatively noticeable color schemes. However, the F-22's color scheme is close to the moss green often used in army paint coating, perhaps because it is a craft that has what is considered as anti-TSF combat.

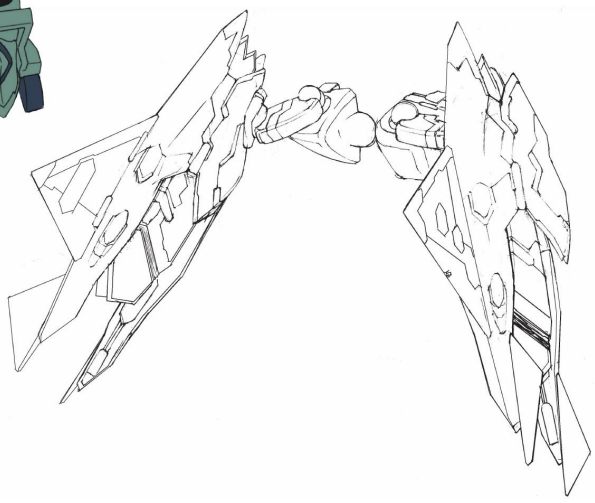
US Armed Forces
F-22A Raptor



REAR (NO EQUIPMENT)



REAR (FULL EQUIPMENT)



Prats & Whitney
FE119-PW-100

The shape of the jump unit was designed in respect to the jet nozzle shape and the wing form of the real world fighter, the Lockheed Martin F-22 Raptor.
The F-22 fighter adopts a vectoring nozzle that can operate in both vertical directions, and the unique design of its nozzle is famous among aircraft enthusiasts.



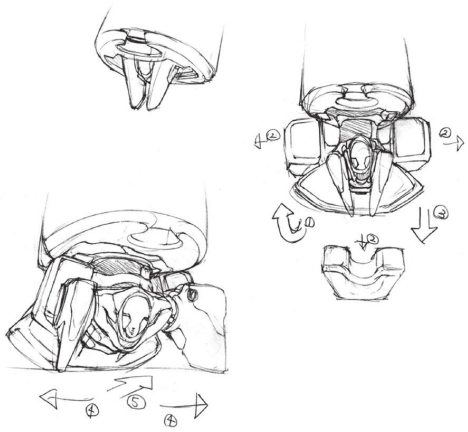
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TSA Format

The design of this amphibious TSA, the Wadatsumi, was also finished when Niθ refined Koki Yoshimune's rough design.
It is unique in that it has a variable transformation mechanism allowing it change from a submarine form to a humanoid attack form.

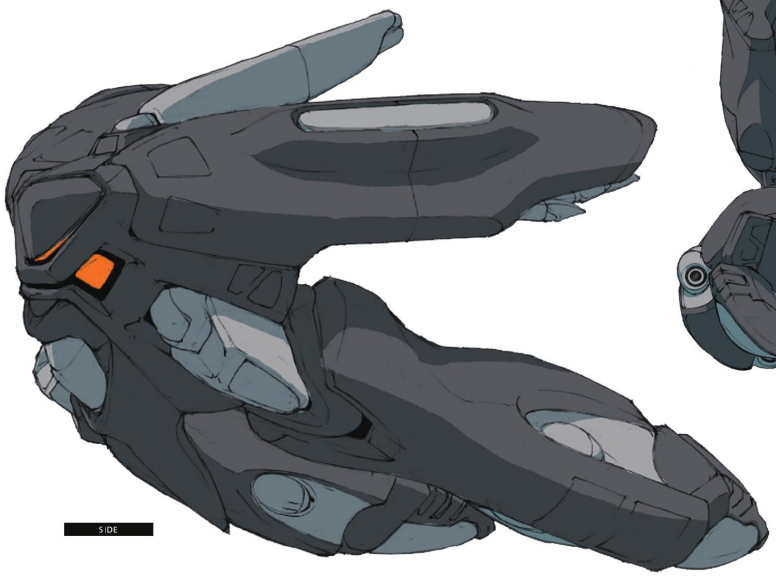
IJN
Type 81 TSA
Wadatsumi A-6J/TSA-Type81

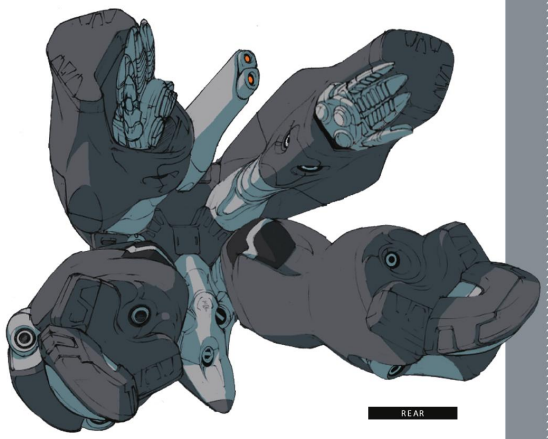




Heel Transformation Mechanism

How the Wadatsumi's heel part deploys, while transforming from submarine to attack form, is set out in detail.

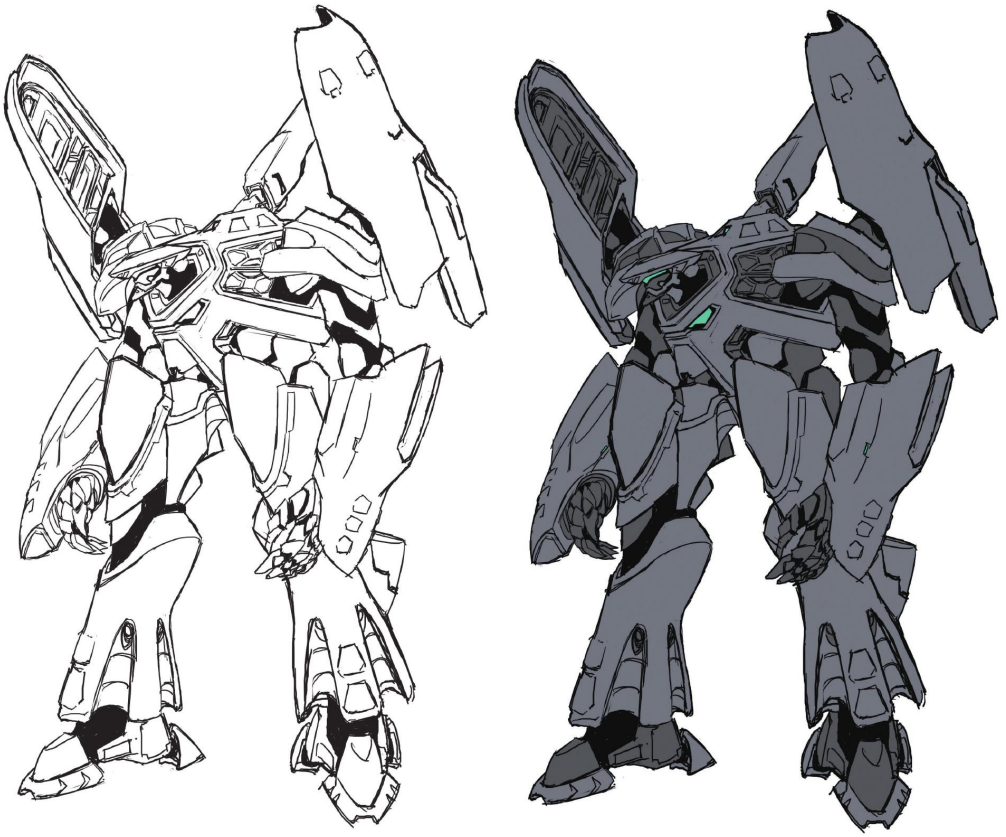




Submarine Form

The submerged form, with its water-resistant shell closed. When underwater, it moves while assuming a streamlined form, which encounters little water resistance.

Wadatsumi Design Concept



Koki Yoshimune's Interview

—Next up is the Wadatsumi.

Yoshimune: From this one, you can really feel Niθ's good taste for these things. He brought out a profound feel you'd expect from an amphibious mobile suit, as well as a variable transformation mechanism, all while retaining the draft's original concept.

I've already spoken about the draft itself being a design from when I was in high school, but I had only thought of really basic transformation mechanisms. However, Niθ set out the transformation of things like the legs, in great detail.

I remember seeing the completed design, and how the arms had become like bellows. We were all moved, since we accepted that that was what an amphibious craft should look like. [laughs]

As an aside, the real head module of the Wadatsumi isn't the thing on its chest, but the tube-like thing on its back. The concept is that when the Wadatsumi is in its submerged mode, it can protrude up from under the water's surface, like a periscope, in order to scout the surface.

—The fact that it can fire twelve 36mm cannons on its sides gives it amazing burst-fire power.

Yoshimune: Because it's a TSA, it's a craft specialized in firepower. The armament storage modules on its shoulders can be swapped out and replaced with all kinds of weapons.

Normally, its standard equipment includes missile pods, and it has a mechanism where it can fire missiles in succession, like push-up pencils. It fires them in a cycle. The missile pops out and is then boosted.

—Push-up pencils sure bring back memories. I'm always grateful for the sculptors from Zoukei Mura, since there's a lot of things I figure out for the first time, once I see it in 3D. Like, "Oh, so that's how this part is!" [laughs]

Yoshimune: I really wanted it to be like Macross, where it opens up and fires them all off, but from the size of the craft, I thought that something like a missile silo would be impossible for the Wadatsumi to use.

And something with a removable lid would stop it from transforming. [laughs]

Also, it's a bit meaningless, considering its entire structure, but since water pressure isn't anything to scoff at, I thought it would be a bad idea to have anything on the front expand too much, when landing.

I was thinking about all sorts of things related to that. Like, if it wasn't the kind of missile that popped up, the flammable gas would probably cause a detonation.

—I would have liked to have seen a video of the scene where after the Wadatsumis launch, the Swordfish-class submarines emerge and conduct surface suppression.

Yoshimune: Just before the Wadatsumi lands, the submarines do their surface suppression. But, if that part was to be animated, the release probably would have been delayed by another half a year. [laughs]

Niθ's Comment

The Wadatsumi was the thing that took the least time to finish. Since Yoshimune's concept design was properly done, and because I liked submarines, my hands must have moved quickly.

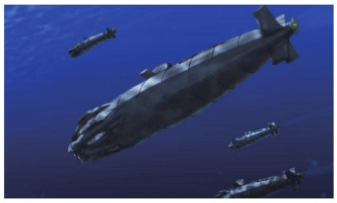
As a side note, although this is really trivial, while I was at Nitroplus, a man called Masakari had just joined the company, as our new progress manager, so I had to show him the ropes about the company. But since I was so busy, I often just brushed him off.

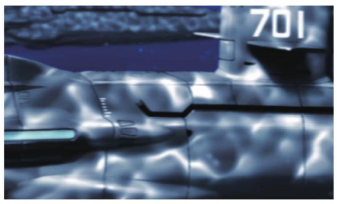
And one day, he kept tapping me on the shoulder, so by that point, I just got mad, swung around, and started shouting. But the person standing there wasn't Masakari, but Yoshimune. His expression clearly said, "You don't need to get that angry from having someone tap your shoulders, right?". Youth. I guess that's what being young is about.

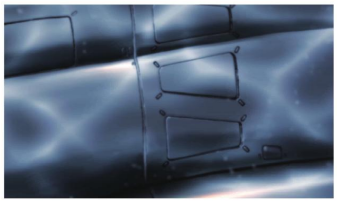
Well, once the development reaches its climax, you usually end up with one or two manga style stories like those. The submarine that the Wadatsumi docks with was the design I had the most fun illustrating out of this game!

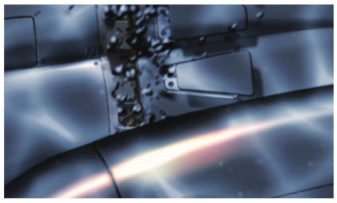
It looks like it would crumple under water pressure, but I guess this world's pressure-resistant structures are several generations ahead of our own.

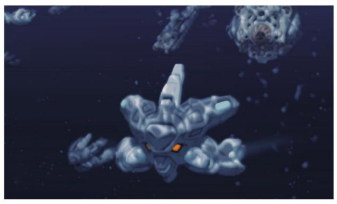








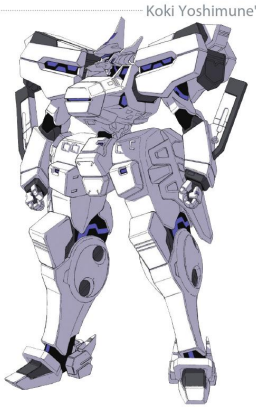




Type 81 Submarine Unit

Ni6's design image of an assault submarine carrier. From this diagram, you can see that the three holding parts that purge the Wadatsumi have been detached. It's designed so that when the landing operation has finished, the Wadatsumi and its submarine re-dock and they can return to a carrier or a nearby base.

F-4J Kai Zuikaku



—From here on, I would like to ask about the TSFs that had their designs revealed after the release of 'Alt'. First of all, I would like to hear about the Zuikaku, the exclusive craft of the Imperial Japanese Royal Guard.

Yoshimune: The Zuikaku was designed as a craft to fill the gap between the Gekishin and the Takemikazuchi. With its introduction, I intended to place care in making sure the flow of technological development and the evolution of operational concepts were both believable.
For fighters in the real world, there are several variants of the F-4, such as the Super Phantom, but there's no source material in particular for the Zuikaku.

—It seems like it had a big impact, among the craft that appeared in the initial stages of the serialization of 'TSFIA' in Hobby Japan.

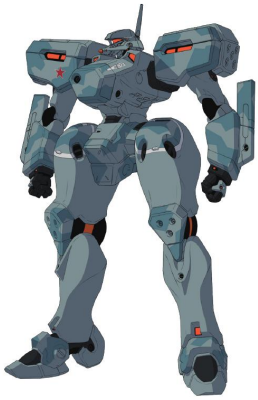
Yoshimune: The Zuikaku is pretty popular, isn't it. [laughs]
Well, that segment had an official illustration drawn just for the magazine, as well as a lot of content.
And the story accompanying it was based on the famous legend of Rock Iwasaki, who 'killed' an F-15 with the F-104. When mechs get a background and a character attached to them, they really stand out in many ways.

—By the way, where does the name 'Zuikaku' come from? Is it the name of a divine beast or something?

Yoshimune: It's a combination of the character for crane, written as 'Kaku', and the 'Zui', which means good fortune. It's outlined in the craft's explanation section, so please look at that part for more details. [laughs] I mentioned it when talking about the Gekishin too, but I have made the Japanese names of the army craft related to things like air and atmospheric phenomena.
The Gekishin, Kagerou, Gekkou, Shiranui, Fubuki, ○○. The Takemikazuchi's is the name of a god, but it does have 'lightning' in its name. [laughs] 'Takemikazuchi' and 'Shiranui' were names I was hoping to use for a robot one day.
Ever since I saw a dog named 'Takemikazuchi' in a manga called 'Yaomato Takeru no Bouken' (★ 1), I thought that if it was okay to give a god's name to a dog, giving it to a robot would be okay too. [laughs]
Oh, by the way, it'd be helpful to base names on a completely different standard, if you're making your own original, fan-made TSFs. After all, there's a limit to the amount of words related to atmospheric phenomena. [laughs]

★ 1: Yamato Takeru no Bouken (The Adventure of Yamato Takeru)
A manga by Yuki Masami that was serialized in 'OUT' and its extra issue, 'APC'. It was based on the tale of the Kojiki, while incorporating elements of parody.

MiG-21 Balalaika



—The design of its feet is unique.

Yoshimune: They were originally the legs of the Gekishin. [laughs] Looking at this first draft sent in by Ni8, I gave him lots of directions, like 'make them cruder' and 'make them more like POWER DoLLS', so that he could hone in on the feel of the draft I originally gave him. What resulted from that would end up as the Gekishin. The Gekishin's legs were something that resulted from that process.
But isn't the design of the MiG-21's legs really good too? That's why I just appropriated it from the neck down, and I changed the head to the Jian-8's. [laughs]
I then made it into the MiG-21 by re-drawing the head.

—Are there any parts on this craft where you followed in the footsteps of the real world MiG-21 fighter's design?

Yoshimune: If you look really closely, the tip of the jaw is the MiG-21. [laughs] I then added the traditional Soviet wire cutter and was done.
If I were to add a round cover on top of this, it would become the Jian-8.

—Ah you're right! By the way, what's the jump unit like?

Yoshimune: I think it's the F-4's, but with the tail fin turned into a diamond, or more like a parallelogram shape to resemble the MiG-21. Isn't a picture of it going to be included in this book?

—I'll look into it. [laughs] I think that the MiG-21 is the base for the Soviet craft designs. Was there anything in particular you took extra care with?

Yoshimune: I wanted to go for the unique and unrefined quality of old Soviet fighters, or something along those lines… I wanted to bring out a feeling of seeing a faded billboard for Kinchol, that insect repellent. [laughs]
I personally think it looks quite cool in a tasteful way. Like an old Zaku.

J-8 Jian-8



—Starting from the F-4, the flow of development then progressed to the F-4R and MiG-21. With that path, the J-8 can be seen as following the MiG-21, right?

Yoshimune: That's right. A standing illustration of the Jian-8 already existed during the development of Alt.
I was planning to include heated scenes depicting the global diversions during Operation Cherry Blossom, but I was told by the development team that if we did that, they'd die, so it was quickly cut. [laughs]
Well, at the time, we didn't even have adequate standing illustrations of the Takemikazuchi, so that couldn't be helped. [laughs]
Both its identity and its design, with the jagged mouth and armored round monitor, are quintessentially of Chinese make. I illustrated it thinking that it would be nice to get the likeness of deep-sea fish from it, or rather, a vicious strength.

—It also resembles 'Alien'.

Yoshimune: Ah, I see. Come to think of it, it's also kind of like 'Elfen Lied' (★ 2).

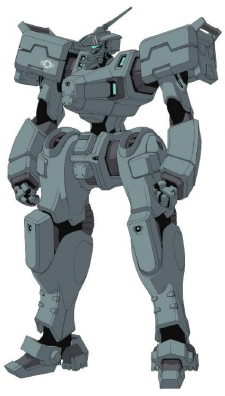
Well anyway, I wanted to express the feeling that even with low levels of TSF development technology, they managed to create an effective weapon, with the wisdom and ingenuity of the technicians they had on hand, who referred to the combat lessons they had learned. Like with the Project X.

—That's something you previously mentioned; conveying world concepts through the mechs. Also, I think both the MiG-21 and Jian-8 would look really cool if they were fully equipped.

Yoshimune: Well, as a side note, the name of the Jian-8 during development was the 'Senkusha' (先駆者, 'Pioneer').
Since it would go too far to have it exactly the same as the real world robot, I changed one character from its original 'Senkousha' (先行者, 'Leader'), but this change was really unpopular, so I ended up just using the fighter's real name.
They wouldn't accept the name unless it was the original 'Senkousha'—the one with the crotch beam! [laughs]

★ 2: Elfen Lied
A manga by Okamoto Lynn. It was serialized in Weekly Young Jump from 2002 to 2005 before being turned into an anime. Contrary to its appearance, it is extremely cruel and violent.

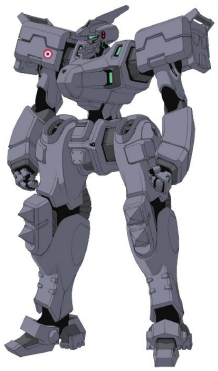
F-5 Freedom Fighter



—What did you pay attention to while designing the F-5?

Yoshimune: It's not a problem limited to the F-5, but personally, I find it difficult to illustrate older generation craft after having done the newer ones, even though it seems like it would be easy.
Since they're older craft, you need to make sure they don't end up looking more advanced than modern craft, but I couldn't help but refine them, out of habit.
And on top of that, there's the rule that all TSFs have to look like a protagonist craft. [laughs]
That's why, when illustrating 1st and 2nd-generation craft, I made sure to always ground them in the level of technology and the design trends available of the craft's time in the Alt world, as well as the required specifications and the craft's position in among the TSF lineage. On top of that, I took care in giving each craft its own unique coolness.
I was thinking that I'd like to leave traces in the designs so that you could reasonably see how European TSFs were born from this craft, and how it evolved into the Typhoon.

Mirage III



—One of the variants of the F-5 is the Mirage III of the French Army.

Yoshimune: Much like the Japanese craft, European ones are in a situation where they are forced to focus on close quarters dogfighting, so fixed armaments of that kind are attached to them.

The spikes on the knee would later evolve into the blade edges on the Rafale. On things like the Mirage 2000 and Tornado, they're still spikes, though. [laughs]

Both Japan and Europe end up having to buy premade TSFs from the US, but I think that they'd both be adjusting them while facing many difficulties, and while saying things like, "We don't need functions like this on our front lines!" and, "We want it to be more like this!".

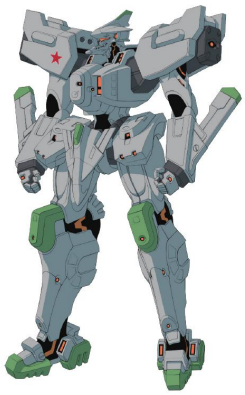
Also, each country has its own unique culture. [laughs] Because of that kind of dissatisfaction welling up, Japan and Europe secretly contact each other to exchange all kinds of technology.

I'd be glad if people could see the background of the time reflected onto the designs of the TSFs. For example, if someone recognized that a certain craft was made when the developing country had made contact with the Empire.

Oh, and the chest has the intake on it, too.

This craft was also one where I wanted to exemplify a Russian form of the Japanese concept 'wabi-sabi'. I guess it's that 'slightly off but still cool' feeling that really hooks you. [laughs]

MiG-23 Cheburashka



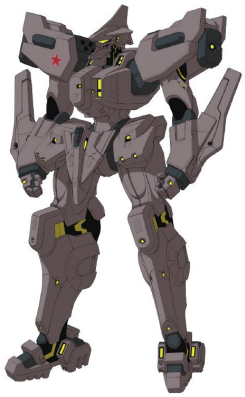
—Apparently, 'Cheburashka' means 'to tumble'. [laughs]

Yoshimune: As expected, Soviet puppet shows have a kind of sad atmosphere about them. [laughs] I wonder what the real name of the MiG-23 is.

It was meant to show up in Total Eclipse, so I had prepared up to a draft, just before that project started. After all, according to the original plans, I wouldn't be writing Total Eclipse. [laughs] I had prepared it to convey the craft's image to the writer, but in the end, I ended up writing it myself. [laughs]

As always, I incorporated the MiG-23's design, especially around the head. The nose, intake, and vertical stabilizer all contribute to the head. The knife sheath and crotch armor are the variable geometry wings.

MiG-27 Aligatori



—The Aligatori is... I guess an alligator.

Yoshimune: By giving it a square forehead, I wanted it to resemble the MiG-27, which was said to look like an alligator. I like the design of the real aircraft quite a bit. It was cool in 'Area 88' as well. [laughs]

Much like the MiG-23, I've spread out the design of the real aircraft over several places. Although it's a bit hard to tell, this craft naturally has the wire cutter equipped to its head. It also stores a machete blade in the large knife sheath on its upper arm.

Personally, I think it's a relatively beautiful looking craft, out of the F-4 derivatives.

—It's sort of similar to the Eagle, isn't it?

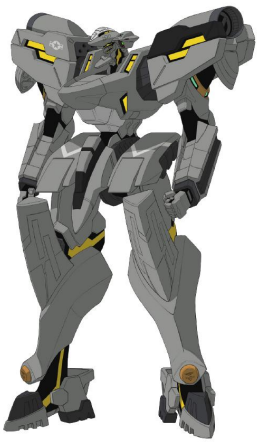
Yoshimune: The MiG-23's like that too, but in practice, it just means they modified the F-4 to that extent. [laughs]

It was a time when America had things like the Eagle and Tomcat, and it has the old Soviet taste of copying or stealing Western technology, while disregarding the consequences of such theft.

I was thinking that I wanted to make the resulting technological synchronization between US and Soviet technology apparent. [laughs]

You can see my love for the original Soviet fighters in things such as the how they were already considered obsolete when first deployed. [laughs]

F-14 Tomcat



—Moving on, how about the F-14?

Yoshimune: If you mention the F-14, the Valkyrie comes to mind! When that happened, the crotch designs were settled. [laughs]

For the waist armor block, I brought over a sense of volume from the real aircraft, which comes from the air intake to the base of the variable geometry wings. The shoulders were based on the engine nacelles.

I wanted to give off the macho, or rather, the full feeling of the F-14, which is a large craft, so it ended up having a flat and wide impression, which is rare among TSFs.

—The F-14 Tomcat is the craft that leads to the Su-27, isn't it?

Yoshimune: There's the Su-27 and the F-15, but the craft that fills the space between them is the F-14. If you add a sideways slit on the chest, it ends up looking like the Su-37.

—Ah! You're right!

Yoshimune: As usual, I tried to design it to give a sense of the technological flow. The legs being small and like hooves, and the shape of the calves come from that design idea as well.

I intended the F-14, F-15, F-16, and F-18 to be made under the same design trend. You can see that in the real aircraft too.

That's what's good about them. [laughs]

—I see that the colors are like the Jolly Rogers (★ 1).

Yoshimune: The skull mark is their standard insignia. [laughs] This is a weird story, but if I were to have designed it while working on Alt, it might have ended up with the Phoenix missile system's launcher component being on the back of the shoulder.

I was playing around with the A3's prototype Shiranui, and I realized that if you put on a large piece of equipment on the back of the shoulder, it gets in the way of a lot of things and stops it from moving.

On the design image, I intended to create a space to solve that by adding an extra block between the shoulders and chest part, and you can see that on the picture as the deep gray part. However, this is a so-called cover up, which only works for 2D images.

But TSFs were designed with the expectation of being turned into A3 figures. In that case, you'd want to keep the gap between the design image and the physical product to a minimum.

That's why I decided that for TSF designs after that, I would place more attention on the position of the back part's mount pylon, and the shape of the shoulders.

—So by making them into A3 figures, you were exposed to certain restrictions for some designs.

Yoshimune: Quite the opposite. Since I'm an old-fashioned robot enthusiast, tied up by industrial restrictions like mobility and standardization, it actually made it easier for me to design them.

I think you'll understand if you see the divided up parts of the Gekishin, but A3 figures are a battle between mobility and molding, as well as between design and interpretation.

The sculptors from Zoukei-Mura use all kinds of techniques and knowledge to adapt the 2D design into a 3D one.

I also give my opinion, like asking to make the interior of the thigh's base hollow, so that the legs could also be bent backwards.

I then applied what I learned from that process into the design, while experiencing my own microcosm of the feeling of TSF development.

★ 1: Jolly Rogers
Fighter Squadron 84 of the US Navy. Later, Fighter Squadron 103 would inherit their name. Their symbol is a skull and crossbones. They appeared in F-14s during the movie 'The Final Countdown', which was released in 1980. They were also the inspiration for Lieutenant Commander Roy Focker's craft in 'The Super Dimension Fortress Macross'.

F-14Ex Super Tomcat



—This is refurbishment of the F-14 into a close-quarters dogfighting oriented craft.

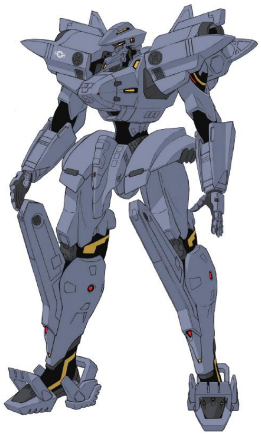
Yoshimune: Since it would engage in close-quarters combat, it had modifications like blades attached to its upper arms, and the Phoenix missile system was removed, with thrusters attached to the shoulders...

The head part was also upgraded with stronger sensors, and so it was stretched forwards and backwards. I added blade fins on the outer edges of the legs, giving it even more of a resemblance to the VF-1. [laughs]

—You're not hiding anything now. [laughs]

Yoshimune: Well, if you mention the F-14, the Valkyrie comes to mind! [laughs]

F-16 Fighting Falcon



—What about the design concept for the F-16?

Yoshimune: Since it's a cutting-edge craft that is an update over the F-5, my aim was to give the craft an impression of high mobility, much like the actual aircraft.

I emphasized the feeling of instability, in that it looks like it has quite a bit of weight on top of its shoulders, and I wanted to give it an impression that it moved briskly... but I'm not sure how that turned out. [laughs]

It's very difficult to make the entire craft have the sleek look of the actual aircraft, so I balanced it out by giving it sort of a mini Eagle-like impression.

They wouldn't accept the name unless it was the original 'Senkousha'—the one with the crotch beam! [laughs]

—After all, you've had to design a lot of craft. [laughs]

Yoshimune: And then, I went back to the roots by looking at the F-15, and had another look over where I had incorporated the design of the actual aircraft.

I reconfirmed that the shoulders were the section of the engine nacelles to the jet nozzles.

Since I'm drawing with the restrictions on design I had mentioned previously, or rather, since I'm depicting them with logic, each successive mech I draw limits my options.

And on top of that, it seems like I got stuck on the design because I was drawing a lot of sections out of habit, so once I decided on the shoulder design, I finished the rest of it pretty quickly. [laughs]

It's like I cut off the tail part of the F-16 and attached it to the shoulders. I put the feel of the massive vertical tail fins, which stand tall on the original aircraft, into the knees.

The unique air intake of the F-16 is attached, in the same way, to the bottom of the cockpit block.

—Apparently, it's quite popular among people who like mass-produced craft.

Yoshimune: It looks like US craft on the whole are liked by people who like mass-produced craft.

I'm thankful for that. [laughs]

That kind of reminds of how someone said that the IJF craft are like Zeon, and the US ones are like the Federation.

That's not really the reason why, but the F-18's design is like a powered or a custom Falcon.

EF-2000 Typhoon



—Next up, could you tell us about the Typhoon, which is active on the European Front?

Yoshimune: I wanted to give off the feeling of the real Typhoon's characteristics.
Its air intake, close coupled delta wing canard, and long vertical tail fin.
On top of that, I wanted to incorporate its origin into the design, where it started off as a 2nd-generation craft, but a lot happened resulting in it becoming a 3rd-generation one, and then technology from Imperial Japan was introduced.... [laughs]
It's the protagonist craft of 'The Euro Front', so I wanted its silhouette to be 'The Takemikazuchi of Europe'.
Since the operational concept is the same as Soviet craft, of course it has also been covered in blades.
So I thought up of things like carbon blades being incorporated into the knees and in front of the shins, and even on its toes.
Then I added aspects of German knights' armor, and I was done. [laughs]
In the initial drafts, the sensor mast was at an angle closer to being perpendicular.
It was like a knight's armor, or rather, Gyan. [laughs]
But I thought that it would be better to have it similar to the Fubuki, since it would allow that technological exchange to be seen, so it ended up like it has now.

—Its equipment gives it a different impression to those prior to its appearance.

Yoshimune: For 'The Euro Front', I decided to lower the barrier to entry compared to 'Total Eclipse', since I wanted to consider those who were purchasing the magazine in which it was being serialized.
That's why I decided to add lots of things that would look good to the crowd, such as the distinct European flavor from knights and coats of arms, monikers, and equipment being different across countries.
In regards to the Typhoon's equipment, Wei Luxin managed to make good use of them in a way that took advantage of the background concepts.
After the halberd is swung down onto the BETA, it's then stuck into the ground, and the craft spins around it as an axis, to cut the surrounding enemies with the edges across its airframe. Expanding upon operational methods like that really is a blessing to people who think up of the concepts.

—The blades attached to the forearms are also quite unique.

Yoshimune: I was pondering how to express the delta wing of the real aircraft, and it ended up becoming that blade.

In the real robot genre, I have a bit of hesitation in striking enemies with weapons held by the manipulator, since it looks like the hands of the robot would break. To address that, I thought of a lot of things like how it would be okay if they were fixed on the arms, or how they'd point outwards while holding an assault cannon so that it could allow for close-quarters defense, and that the blades could probably be jettisoned and replaced should they become blunt.

Well, our job is nothing more than making it feel realistic, rather than actual realism, so I prioritize artistic coolness. That applies when the Shiranui does a hand sign in the 'Chronicles' OP and the scene where the morning sun shines on Takeru and the others during the sortie film of Alt's Operation Cherry Blossom. [laughs]

Su-27 Zhuravlik

—What can you tell us about the current Soviet Union mainline craft, the Su-27?

Yoshimune: The form of the entire craft is exactly the same as the structure of its technological parent, the F-14, but it has been made to have dense close quarters combat specifications, so I made it look like just touching it would be painful. [laughs]

I've also placed attention on giving the craft characteristics of a crane's sharp beak and blade-like sharp wings, since its nickname means 'crane'. As per usual, the Soviet craft's tail assembly is incorporated into the shoulder blade vanes.

The head's sensor masts are the vertical stabilizers of the actual aircraft, but they kind of give the impression of a bat's face, right?

The MiG-29 and the Su-27 are craft from the same period, and there's a background concept that the Soviet Union's design trends of the time were bat-like designs, like on this craft.

—Isn't it a refined Getter 2 [laughs]?

Yoshimune: Ah! Hold on a second!! Don't you think it resembles Warsman!? I just noticed [laughs]!

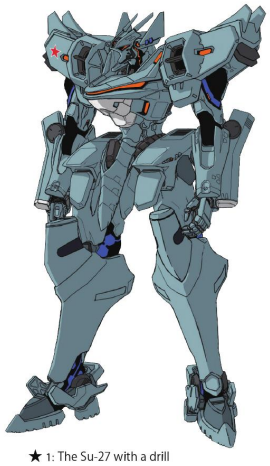
—They're both from the Soviet Union, and they both have claw-like things on their arms. [laughs] Speaking of the Soviet Union, starting with this craft, they have the characteristic motor blades.

Yoshimune: Because it's the Getter 2, I obviously wanted to make it have a drill, but I thought that would be going too far, so I made it a chainsaw. After all, a hockey mask and a chainsaw are a staple combination. [laughs]

—I feel like I'd want to see a Su-27 with the ultimate drill weapon.... [laughs] (★ 1)

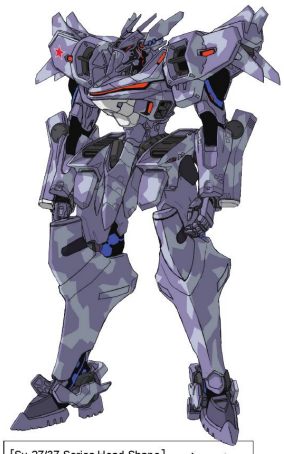
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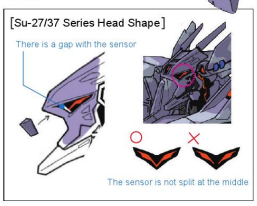
It was kind of lame and edgy concept of a silver-colored craft with nano-coated armor that reflected lasers, and it could capture the Original Hive by itself with its drill. [laughs]



★ 1: The Su-27 with a drill
A Su-27 with a drill, in Getter 2's color scheme, was on the cover of a doujinshi written by Makishima Azusa, the author of the version of Muv-Luv Alternative that was serialized in (monthly comic Dengeki Daiou). The doujinshi was sold at Summer Comiket 2009.

Su-37 Terminator





—What about the Su-37, which was piloted by Cryska and Inia in 'Total Eclipse'?

Yoshimune: As it was a craft piloted by the enemy, or rather, rival-esque heroines, I devoted my attention into how to differentiate it from Western craft while giving it a coolness that comes from heels.

Once it comes to that, it can only end up like Getter 2. [laughs] So then I just pulled out some old pictures. I aimed to differentiate the craft from existing ones by making its legs more like a bird's.

By giving the head four horns, I emphasized the feeling of a high level custom craft, like the VF-1S. [laughs] The shape of the real aircraft's canards is incorporated into the blade vanes attached to the shoulders.

The front thruster on the waist is derived from the thrust vectoring nozzle that had been installed on the actual aircraft, so it's supposed to start up vertically.

The preexisting craft all kind of had a masculine image, so I thought that I wanted to somehow give it a feminine expression, so I made the feet like heels.

As for the order I designed them, I started with the Su-37, then did the Su-47, and did the Su-27 last.

—So in that sense, this Su-37 was your test bed, like the Shiranui, but for Soviet craft instead?

Yoshimune: You're right in the sense that it's a design benchmark. Although in a sense of its position, it's closer to the Takemikazuchi.

In terms of pointiness, too.

Oh, that reminds me. When you hold the A3 of the Su-37, it hurts quite a bit. [laughs]

—The Terminator's A3 was pretty popular. Wei Luxin wanted one. [laughs]

Yoshimune: Many people think that the Terminator has twin eyes, but that's due to the influence of the A3.

In the original concept, the wire cutter and main sensor have a gap between them (Refer to diagram on the left), but since it couldn't be recreated, due to limitations of the mold, it sadly ended up omitted.

In place of that, the main sensor shown to be curving around both sides in the illustration ended up turning into a twin eye. This resulted in the sort of worried look that the A3 version has on its face. [laughs]

—What an unfortunate chain of coincidences...

Yoshimune: Well, that's okay in its own way, since it has a sort of Hayato-esque taste, from the early Ishikawa version of Getter. [laughs]

—Just how much do you like Getter 2 [laughs]!?

YF-23 Black Widow



—The YF-23 is really popular.

Yoshimune: While based on the F-15, the YF-23 appears to have evolved down a different branch compared to the F-22. That's because Northrock and McDaell Doglam cooperated on it.

I've converted the real aircraft's feeling of going a bit too far into how showy its parts are. [laughs] As it's a craft that doesn't neglect close-quarters combat, there are many spikes on it, and the shoulder and waist part thrusters are like those on the real aircraft.

The knife sheath is a large version, and has the capacity to store a machete. On the normal type of the YF-23, two can be kept on each arm, for a total of four. This was something that expressed the characteristic of stealth craft; having weapons stored internally if possible.

The knife sheaths are interchangeable, and can be swapped out for motor blades, or a Typhoon's blades, as long as the specifications match.

—I guess it's said that for the real YF-22 and YF-23, if you were to ignore the stealth, they could be externally equipped with a significant number of weapons.

Yoshimune: That's right. I have an expectation that stealth craft are unexpectedly heavily armed, so the design includes four hardpoints across both shoulders, and two sub-hardpoints on its back, for a total of six possible mount pylons.

The reason why I moved the hardpoints to the shoulders came from having fiddled with the A3 figure.

It was to avoid interfering with movement as much as possible, but I made an error while supervising the production of the actual A3 of the YF-23, and it ended up with only one hardpoint on each shoulder. [laughs]

—So this too is a craft had undergone changes due to the A3.

Yoshimune: It's true that things like prototypes look good when they become 3D. Maybe it's especially true for the YF-23, since its high-specification vibe comes off it easily, and it feels different to anything before it.

Things such as there being two rows of main sensors, and the form of the chest to the waist, as well as the shoulders being shaped differently to previous craft. This applies to the F-35 as well, but 3rd-generation craft are simply fun to draw.

—Why may that be?

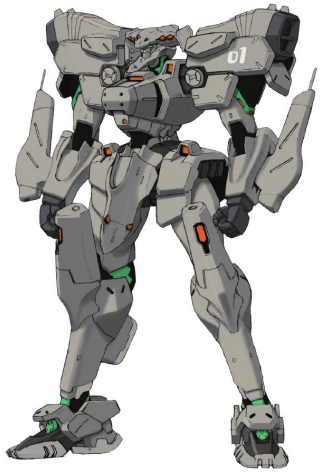
Yoshimune: TSFs are kind of a causal avatar for fighters, which didn't evolve in that world.

The concept behind it is that the designers who were called geniuses would create the craft after receiving causal information from alternate worlds. They're like fortune tellers making accurate predictions.

That's why I decided to have the form of the real aircraft show strongly on the jump unit, especially for 2nd-generation craft. I wanted to leave proof of the technological abilities of that world, by having jump packs resemble jets of the real world, like as if they had created the entire jet there.

For 3rd-generation craft and beyond, I greatly loosened those kinds of restrictions, so it's fun to have a comparatively high degree of freedom, and I can have flashy craft.

F-15 ACTV Active Eagle



—From here on, I'd like to ask you about TSFs that are probably of the next generation. First, there's the F-15 ACTV.

Yoshimune: I think that at the time, Boening's TSF development was becoming more and more impoverished, despite sharing the manufacturing for some parts of the F-22.

And the first thought that popped into my head was that they would make the F-15 ACTV as their survival strategy for the future. In that world, the F-15 is used globally, so I thought that they would try to make ends meet by tapping into the aftermarket.

And so they kind of tested the waters, by setting up the Phoenix Initiative, under the premise that it wouldn't waste assets, since it would be cheaper to upgrade craft than purchase new next-generation craft.

I handed those kinds of the concepts, along with the Kagerou Kai's design for Ayu Mayu Alternative, to Fujirou and left the rest to him. [laughs]

Since it's an experimental craft, I played around with the coloring and ended up taking it from the limited edition Air Jordan 4, which had a combination of gray and fluorescent green. After all, the shoes are American too. [laughs]

—That last part didn't make much sense, but I see... Wait, that's it?! [laughs]

Yoshimune: Other than that, since successor craft of the ACTV, such as the YF-23 and the Shiranui Second, had their designs completed before it, I had the designer look at those designs and asked for the ACTV to have its lineage taken into account, as a craft that connected the Shiranui Type 94-1C to the F-15.

I gave him the 'GM Quel' as an example. Although I think that in terms of concept, it's closer to a Powered GM. [laughs]

—That's a really easy-to-understand instruction. [laughs]

Yoshimune: Fujirou's amazing. He's really good at drawing original designs, after properly considering the preexisting world concept.

He's a genius on the same vector as Izubuchi. He's one of the designers I look up to.

Fujirou's Interview

Fujirou

A mech designer and illustrator who made several of the TSF illustrations seen here. He has also worked on many illustrations that have been featured in 'Weekly Gundam Fact File' in DeAgostini Japan, as well as 'Macross Chronicle' in Shogakukan-Shueisha Productions.

—Please tell us anything you had specially considered for the F-15 ACTV's design.

Fujirou: First of all, I wanted to make sure it didn't feel out of place with the world concept of the work, and to make it look not only like an F-15 with additional equipment, but to give it a silhouette that looked like a whole new TSF, once it had everything equipped.

—What kind of instructions did you receive for designing the F-15 ACTV, and how was your progress with it?

Fujirou: My specific instructions were to add verniers on the shoulders and back, add parts to the forearms, and give it a strengthened head sensor. From there, I submitted a draft, where I took care to ensure the added parts had a good affinity with the craft's silhouette, and also added some of my personal taste.

Fortunately, the draft was given the okay in one go, so the total time on the job was short.

—What's your favorite thing about the F-15 ACTV's design?

Fujirou: It's the silhouette of the rear view.It's unexpectedly flashy, with the added vernier and the strengthened jump unit.

—The F-15 ACTV first appeared in 'Total Eclipse'. I'd like to ask about your opinion on its activities in the magazine and having it turned into an A3 figure.

Fujirou: At the start of the serialization, I was worried if the readers would accept it or not. After all, its design played off of a preexisting craft. I was relieved that it was unexpectedly accepted.

The fact that it was active from the start of the serialization before becoming a figure and being turned into a product is something I'm personally very happy with.

J-10 Jian-10

—Next I'd like to ask about the J-10, the craft piloted by Total Eclipse's Cui Yifei.

Yoshimune: I designed it while taking in the fact that its appearance was similar to the F-16. Furthermore, since it's a Chinese craft, which needs to engage in dense close-quarters combat more than other nations, I couldn't leave out the traditional armored round monitor and the jagged mouth. [laughs]

In which case, I'd reject any comments suggesting not to have a blade antenna. [laughs]

—The reactive armor on its chest and waist is also unique.

Yoshimune: Their function is closer to a claymore (★ 1), as a countermeasure against Tank classes, rather than reactive armor that counters shells.

TSFs of other countries just don't adopt it as formal equipment, based on the combat lessons from Europe, but it's quite popular on the field, according to the world concept.

It deals damage to surrounding friendly units, and depending on where it is attached, it can break your own craft. [laughs]

The biggest problem is its weight, obviously, and since that kills the maneuverability and mobility of the craft, even Chinese forces only equip it to vital locations on the airframe.

—This also has a popular A3 figure.

Yoshimune: It's probably the mass-produced craft feel that it gives off. You also see it move a lot.

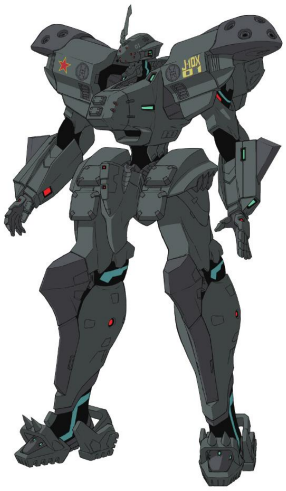
The craft that Yifei pilots is often said to be a special color, like sewage [laughs], but they're all using the same model when recording so it's simply a difference that results from post processing like lighting and filters.

At first glance, it looks the same as the F-16, but it's a craft that has many parts that can't be shared in the mold, so that made Volks cry.

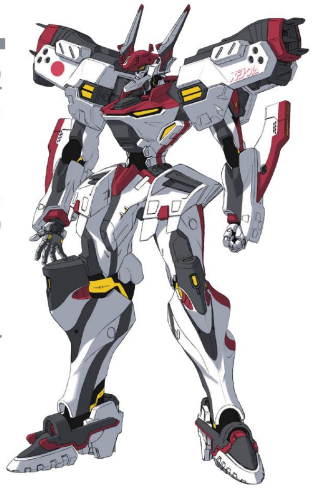
Originally, the angle of the chest was lower compared to the F-16's, but to save costs, this part ended up becoming shared between the two.

Through persistent efforts like that, and the love from the players that support it, these miracles, such as turning a minor craft like the J-10 into a product, can continue.

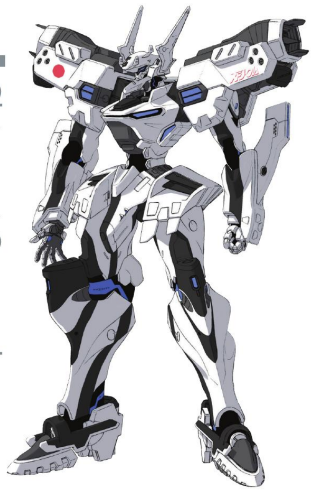
★ 1: Claymore Mine
A directional anti-personnel mine used by the US military. When it detonates, the blast launches the metal spheres inside it in a fan spread.



Shiranui Second Demonstrator



Shiranui Second XFJ-01a



Shiranui Second XFJ-01b



—I'd like to ask about the protagonist craft of Total Eclipse, the Shiranui Second. I'd like to start off with the black, red, and the white demonstrator.

Yoshimune: If the Type 94-1C is the Gundam Mk-II, then the Second is the Z Gundam. [laughs]
The reason why the Second is tricolor is because the demonstrator for the F-16 was red, white, and dark blue, so the people at Boening determined that tricolor would be associated with Japan. It's a parody of the coloring of the F-2 demonstrator, or the T-2CCV.
Generally, the demonstrators of Japanese craft are black, red, and white, so I followed that scheme. And if you put yellow in there, see, it looks like a protagonist. [laughs]
This is probably the first time the eyes of a TSF were yellow. But it gets called things like Dragonar or Tekkaman Blade... I guess they're similar. [laughs]

—What about other craft?

Yoshimune: The second craft is a recolor of the first.
Like the YF-22 and YF-23, the craft colors are differentiated due to the jump unit engines being different. If I were to put it in Dunbine terms, it'd be the dark blue one that Todd rides.

—What about the test color for Yuuya's craft?

Yoshimune: Since the Su-47 that appears at the end of chapter 1 is black, I was thinking that I'd like to make it the complete opposite; a white craft, like a protagonist. Compared to the sinister image of black, white is the color of an orthodox hero.
Starting with the design of the demonstrator color version, which had red in it, it ended up the pure white it is now after it we made several changes to it, starting with just getting rid of the red. Japanese people are often said to like the color white, like with cars.
In a similar story, from around 2005, the initial white iPod was trending in Europe. Thanks to that, the color white, which was exclusive to Japanese distributors, was added as an official car body color of the Lamborghini Gallardo (★2).
I remember that when I was designing it, I made it white, because all of that happened.
... Although this looks like Patlabor. [laughs]

—Finally, it's time for the 'phantom craft' to make an appearance. [laughs]

Yoshimune: It certainly is a 'Maboro' (★3; short for 'phantom' in Japanese). [laughs]
I was making the concept of this at the same time as the Su-37, and I had casually revealed it in 2006, during the production announcement movie for 'Altered Fable'.
That's why Volks had made the A3 prototype at the same time as the purple Su-37, so it means that it's been lying around unused for several years already. [laughs]

—That's why it's the phantom craft. [laughs]
Now I'd like to get back to the main topic, its design.

Yoshimune: This craft was a local use TSF for achieving a long term goal of the Soviet Union, to capture hives. Therefore, it's made with extreme specifications in dense close-quarters combat. Thinking of combat scenes like that, I wanted to push the image of a fierce god, or more like the image of a devil.
Anyway, blade edges are incorporated into every imaginable corner of the armor, and the entire body is truly covered in sharp blades. Even on the heel, there's a folding jackknife-shaped blade. Normally, it acts as a guard for the Achilles tendon like a wire cutter, but it has a vicious specification where whenever it stomps or kicks, the knives deploy downwards to stab and cut.
I've liberally applied the image of the real aircraft's characteristic forwards swept wings. [laughs] They're around the head, shoulders, knees, and jump unit.
The large carbon blades on the shoulders are removable, and side thrusters have been added too.
I made the main sensor split into three parts, like Aura Battler (★4), in hopes of giving it a more vicious impression. Since the shins were enlarged and the backs of the feet were turned into heels, it's taller than the Su-37.

—Is there any particular reason for the heels?

Yoshimune: There's a theory that heels were created in France during the Middle Ages to avoid stepping on waste, since there were no sewers.
It's the same as that.
If you're in dense dogfights, the ground is mangled with things like the corpses of Tank classes.

—What about its design?

Yoshimune: I intended to express the design so it was easy to understand that it was a Shiranui with elements of the F-15 ACTV.
I also took care in making the silhouette of the slender Shiranui closer to that of other countries.
Since it's a demo craft, I incorporated the image of the nose cones and sub spoilers of the 2005-2007 F1s, for the forehead, and the four sub posts. Since Japanese craft use their aerodynamic properties to assist in maneuvers, I brought them over from the F1s, which also have large aerodynamic properties.
Since I enlarged it overall to increase the propellant capacity, I gave it heels to balance it out.
When looking at the line art I drew myself, I thought it was a bit lackluster. Since Nié's original concept image was so superb, adjusting it would make it look unbalanced. But once it became an A3 figure, it was really good, so I was relieved. [laughs]

★2: Lamborghini Gallardo
An Italian sports car manufactured by Lamborghini. Compared to the series of cars leading up to it, the Gallardo is the only one without the characteristic swing-up doors. Rather, it has doors that open sideways, like a typical car.

Su-47 Berkut

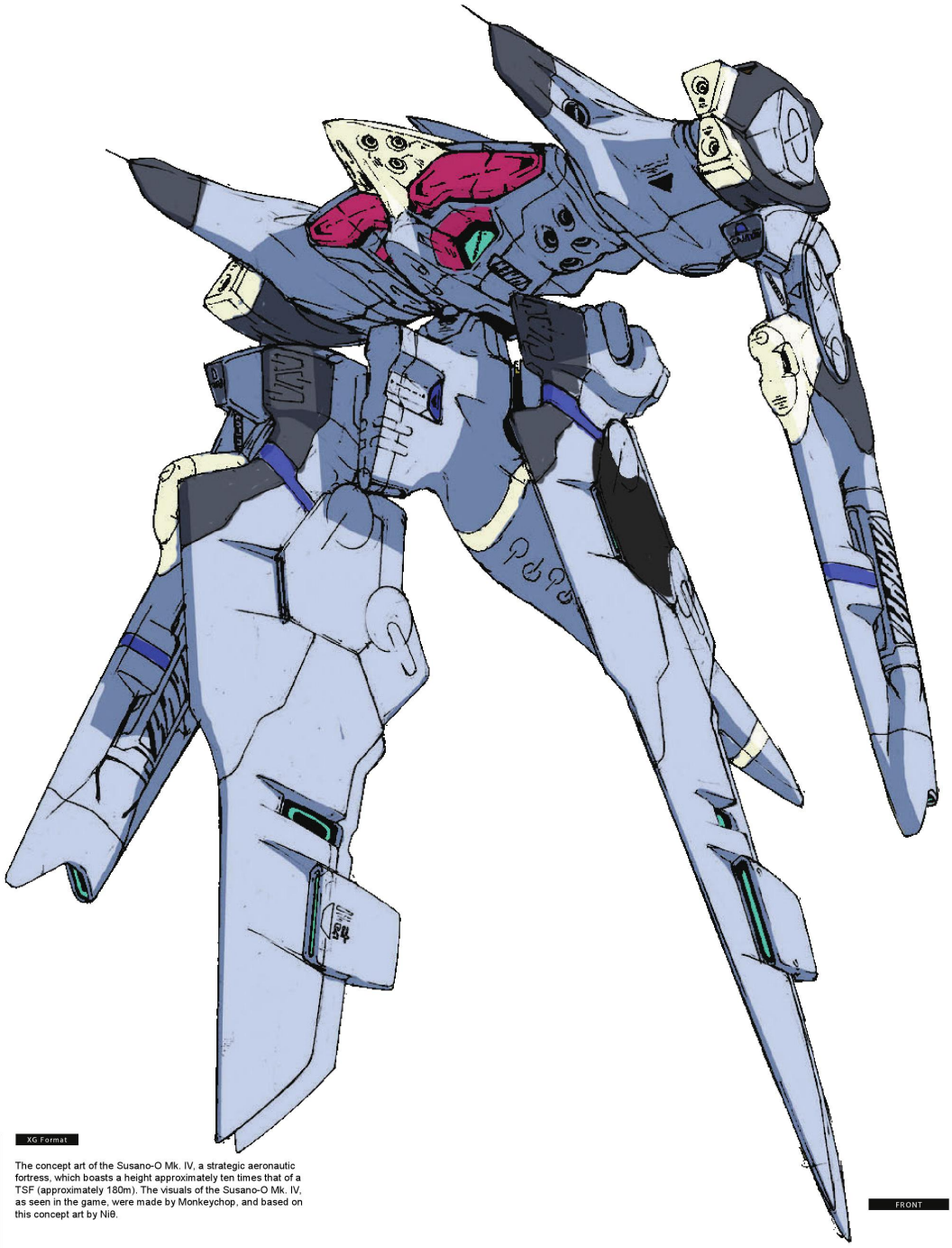


—I see! And that's why the Su-37 and the YF-23 have heels too?!

Yoshimune: Wait, don't trust that story. [laughs]

★3: Maboro
An abbreviation of the word 'Maboroshi', meaning phantom, used by Kuribayashi Minami, when she was on 'KimiNozo Radio'. It was also used in the lyrics of 'MAGIC' sung by Wild Sannin Musume.

★4: Aura Battler
The general name for the humanoid, combat-use robots that appear in 'Aura Battler Dunbine'. They use a spirit energy named 'Aura Power' as their power source.



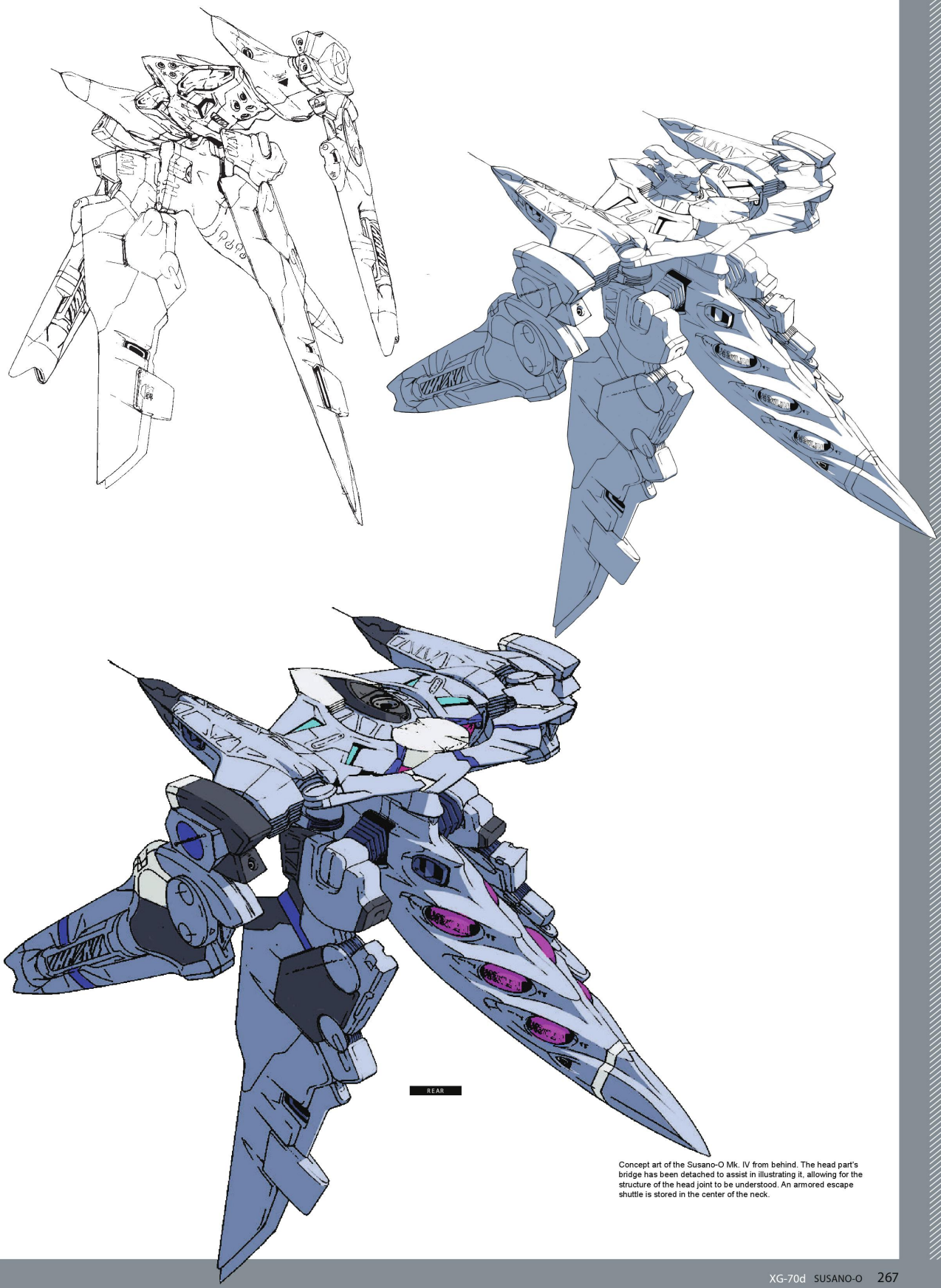
XG Format

The concept art of the Susano-O Mk. IV, a strategic aeronautic fortress, which boasts a height approximately ten times that of a TSF (approximately 180m). The visuals of the Susano-O Mk. IV, as seen in the game, were made by Monkeychop, and based on this concept art by Niθ.

FRONT

XG-70d

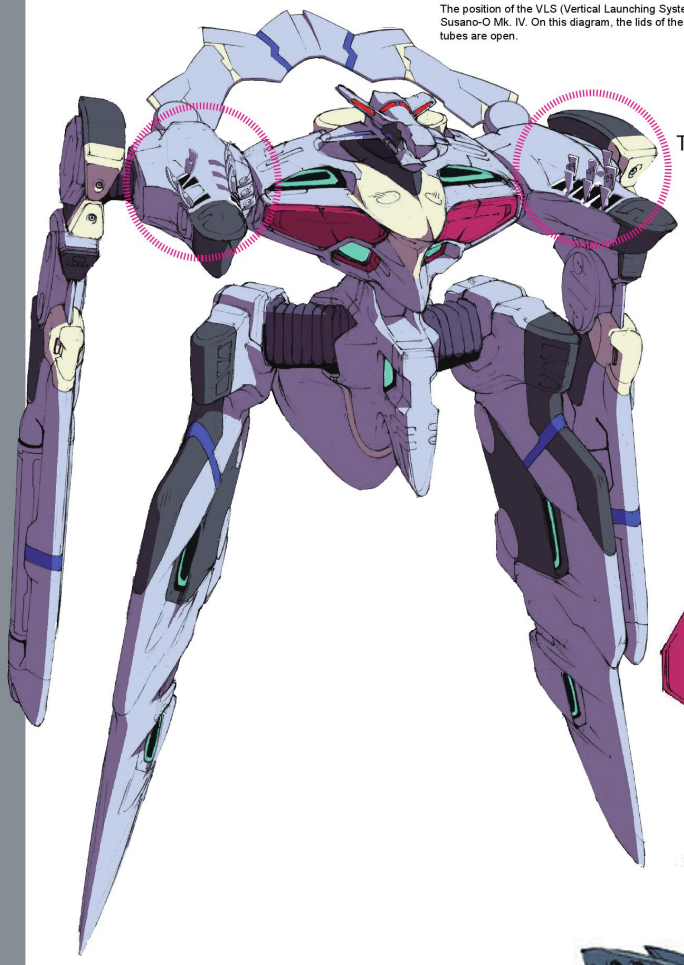
Susano-O Mk. IV

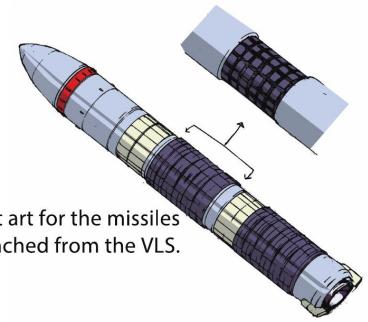


Concept art of the Susano-O Mk. IV from behind. The head part's bridge has been detached to assist in illustrating it, allowing for the structure of the head joint to be understood. An armored escape shuttle is stored in the center of the neck.

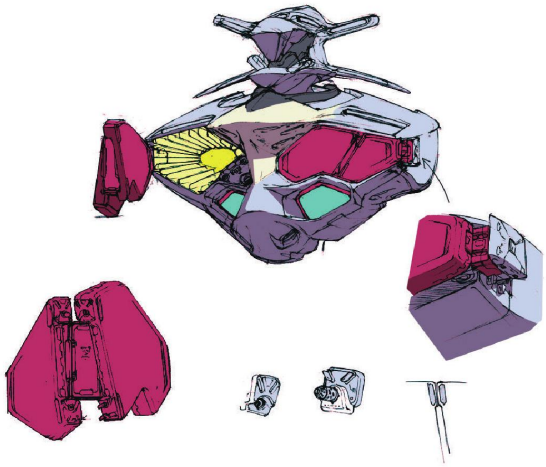
MISSILE BAY

The position of the VLS (Vertical Launching System) on the Susano-O Mk. IV. On this diagram, the lids of the VLS launching tubes are open.





The concept art for the missiles launched from the VLS.



CHARGED PARTICLE CANNON

The concept art for the charged particle cannon. The firing port is normally sealed off, and the front gate only opens when firing.

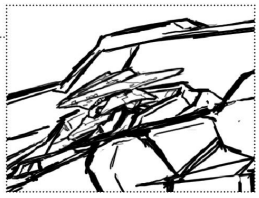


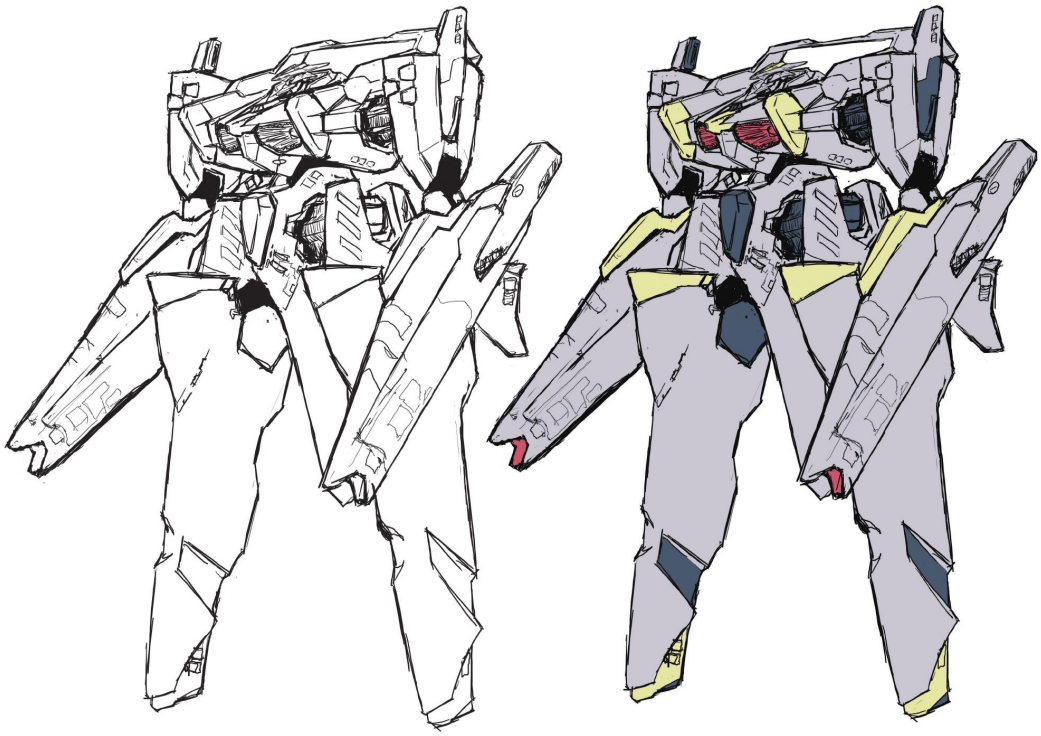
XG Format

The design of the Susano-O Mk. II, the predecessor of the Mk. IV, was created by arranging the arm and leg parts of Ni8's Susano-O Mk. IV design.

XG-70b
Susano-O Mk. II

Susano-O Design Concept





Koki Yoshimune's Interview

—Please tell us about the Susano-O's design concept.

Yoshimune: That would be Andromeda (★ 1) and Battle 7 (★ 2).
The Susano-O is humanity's trump card, and the final weapon to challenge the enemy's boss, with the fate of humanity hanging in the balance, so I wanted it to be a massive craft that shows its power like the Macross when compared to the Valkyrie, or more like I wanted it to be comparable to something like that.
It was Niθ's idea to have the head's design be like the Raptor's since the manufacturers were the same, and since I loved designs that established a lineage, I immediately gave it the OK. [laughs]
During the planning stages of Demonbane, I managed to get a chance to talk to him about all kinds of things related to concepts. He's truly full of ideas and images, and I didn't get bored talking to him.
For example, normal people wouldn't be able to think of the designs for the heat sinks on the nape of the Susano-O's neck, and upper arms.

—They certainly are amazing. They look like Andromeda too. [laughs]

Yoshimune: Yoshinaru Kou thought up of the opening/closing gimmick of the main gun's protective hatch, and the deployment of the gravity control funnel.
He also did an amazing job on things like the Fubuki's hands. [laughs]

—Did you design the Mk. IV or the Mk. II first?

Yoshimune: I created an embarrassingly messy draft for Mk. II [laughs] based on the Mk. IV's design, then had Niθ refine it.
Its inspiration is the Dendrobium.

★1: Andromeda
A space battleship that appears in 'Farewell to Space Battleship Yamato' and 'Space Battleship Yamato 2'. It is the flagship of the Earth Defense Force Combined Fleet and is the biggest and strongest battleship.

★2: Battle 7
A massive stealth attack space carrier that is the flagship of the Macross 7 Fleet, and is positioned on the front of Macross 7. In emergencies, it is also capable of transforming from a carrier into a humanoid form.

Niθ's Interview

—Please tell us about the inspiration behind the Susano-O.

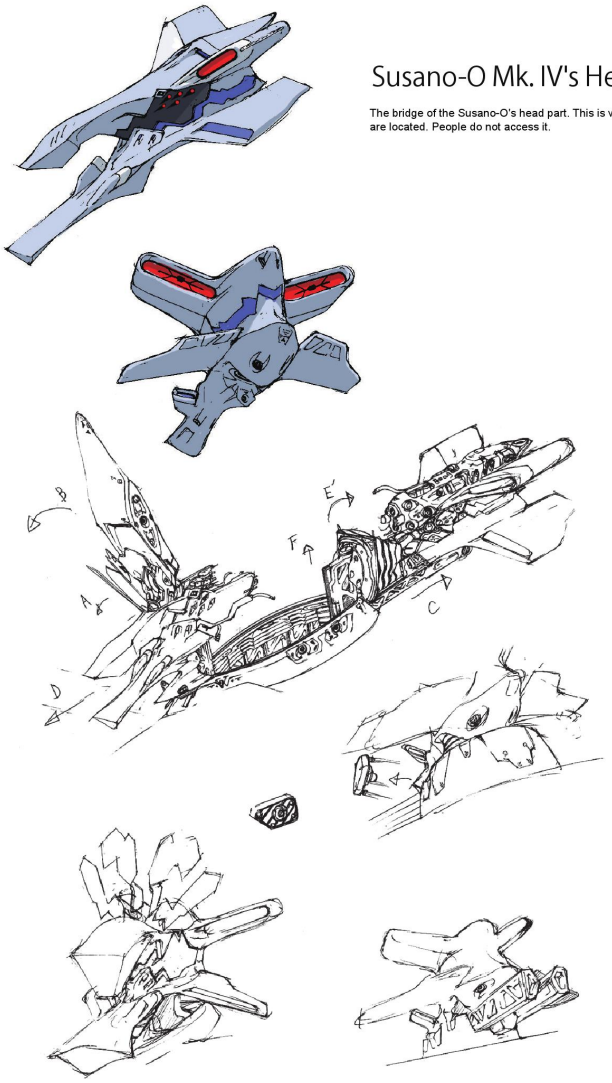
Niθ: The concept was already solid, so I created the it based on those concepts.

—What about anything you paid special attention to with the Susano-O's concept design?

Niθ: In order to create a sense of a 'hastily made, massive structure', I took the approach of having lots of small parts attached all over it.
Also, since it's capable of gravity control, I made it give the impression that it was poorly balanced, and held back the sense of stability on it.

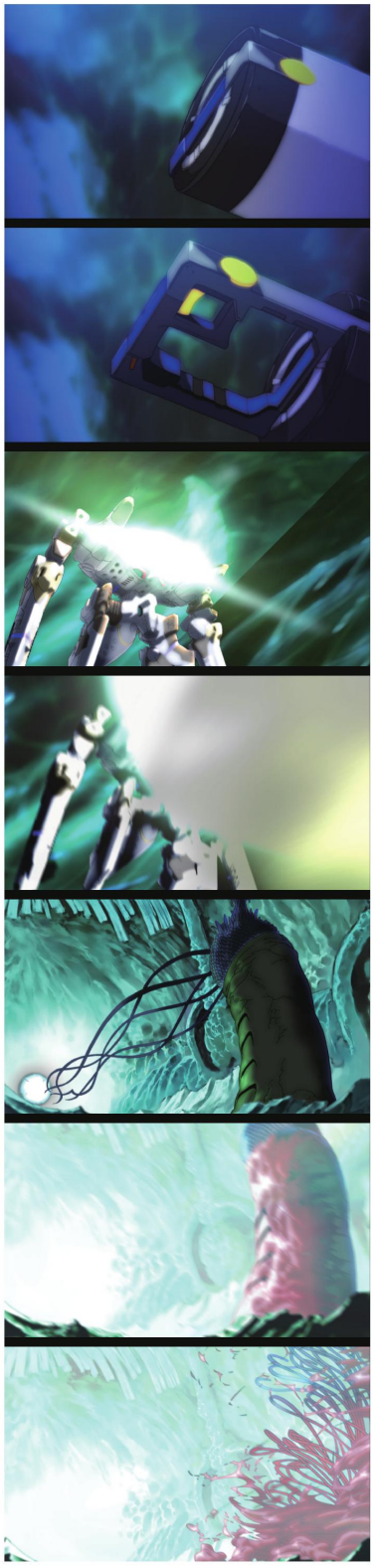
—What about the XG-70b Susano-O Mk. II?

Niθ: I was told that it was a version where the arms and legs would be removed, so I had âge handle it for me. But I think it looks neater without hands and feet, so I prefer this one.



Susano-O Mk. IV's Head Part

The bridge of the Susano-O's head part. This is where the sensors are located. People do not access it.



Susano-O Mk. IV's Head Part - Ejection Sequence

The sequence of the armored escape shuttle bailing out from the Susano-O Mk. IV. The lock bolts holding the head part in place are purged with explosives, the upper armor flips up forwards and the rear part of the parietal armor springs up forwards.

Next, the head part slides back and forth, and the neck, which holds the head part in place, springs up to secure a path for the armored escape shuttle. After that, a rail for the armored escape shuttle rises up.

Koki Yoshimune's Interview

—Please tell us about the armored escape shuttle that is stored inside the Susano-O.

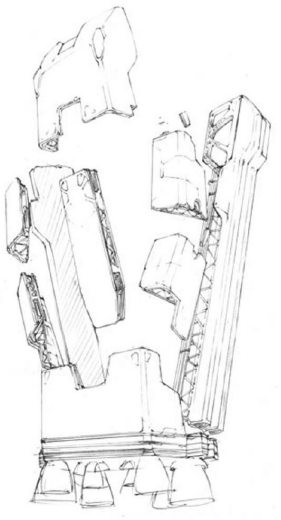
Yoshimune: The restrictions on the armored escape shuttle included fully foldable wings, and a size small enough to fit inside the Susano-O Mk. IV but large enough to have ten people fit in the cockpit. From that, I created a base design that had the nose and the engine nacelle separated by a horizontal line, like the MiG-29.

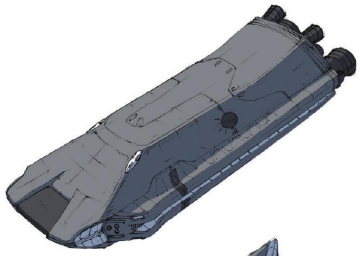
Once I handed in a draft, which was just the sideways silhouette, and told the concepts to Niθ, it came back to me as a cool-looking craft, as expected. [laughs]

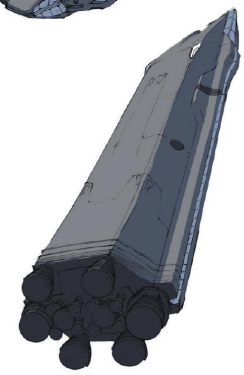
The design of the ejection sequence from the Susano-O Mk. IV, and the booster on the armored escape shuttle are also by Niθ, and they ended up being designs which inspire you and make you excited when you see them.

Niθ's Comment

It's fun drawing things like the ejection sequence of the Susano-O Mk. IV, and things related to the armored escape shuttle. These sub-mechs don't get much attention, but when drawing them, you get strangely attached to them.



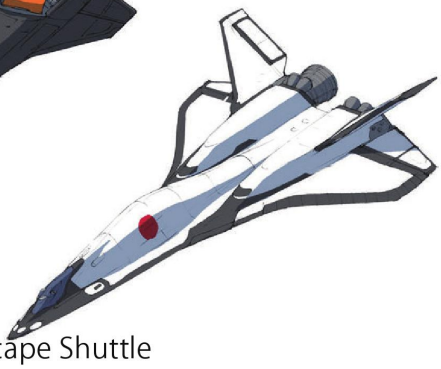




Booster

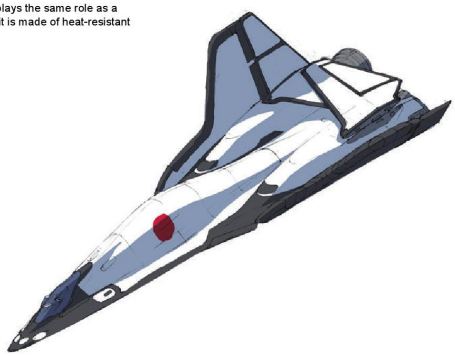
A booster that launches the armored escape shuttle. It is composed of a rocket, fuel tank, and supplemental armor.





Armored Escape Shuttle

A craft used to return to the surface. It plays the same role as a space shuttle orbiter. The underside of it is made of heat-resistant panels for atmospheric reentry.

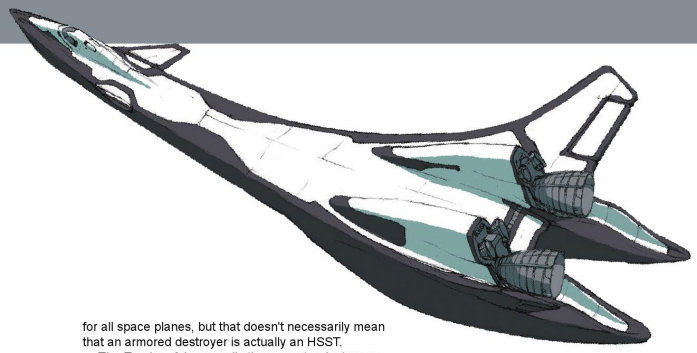


Storage State

The state of the armored shuttle when it has its booster stored inside it, with the shuttle itself being stored inside the Susano-O Mk. IV. The wings and tail fin are folded.



Hyper Surface Shuttle Transporter (HSST)



Koki Yoshimune's Interview

—Next up, I'd like you to tell us about the design concept for the HSST.

Yoshimune: The source of inspiration for the HSST was the next-generation NASA space shuttle proposed by Luigi Colani (★ 1).
It's in this book [picks up a book]. This is his ideal future, or rather, he proposed that the future will eventually look like this. I guess it's called a 'retro-future'...
This design is quite similar to the armored destroyer Gaia in 'Locke the Superman', and I asked Niθ to design it, using that as inspiration.

—Please tell us why the HSST is called a 'reentry destroyer'.

Yoshimune: In this world, all spacecraft are treated as space combat vessels, much like in 'Royal Space Force' (★ 2).
That's why, even things like space shuttles are considered a type of combat vessel.
Therefore, of these space combat vessels, the ones that attack things such as satellites are called 'destroyers'.
On the other hand, HSST is just the general name for all space planes, but that doesn't necessarily mean that an armored destroyer is actually an HSST.
The Empire of Japan calls them reentry destroyers, but this is just them showing it's a space plane by adding 'reentry' to 'destroyer'.

★ 1: Luigi Colani
An industrial designer from Germany. His characteristic designs use nature as a motif, with gentle and smooth curved surfaces. He has worked on designs for a vast variety of things from PC mice peripherals to space shuttles.

★ 2: Royal Space Force: The Wings of Honnêamise
An anime film that was released in 1987. Its story is set in the 'Kingdom of Honnêamise', which exists in a parallel world, and it depicts mankind's first space program. It is the first work by Gainax. Sadamoto Yoshiyuki and Anno Hideaki, who would both later work on things like 'Neon Genesis Evangelion', took part in its production.

Niθ's Comment

Now that I look at it... Yo— It's curved back way too much! It has such a heavy backwards curve that I can't help but say that.
This too had a detailed concept design by Yoshimune. I recall that he explained it to me, after making a figure of it with Sculpy, that molding plastic that hardens when baked.

Type 99 Surface Pilot Fortified Suit



Koki Yoshimune's Interview

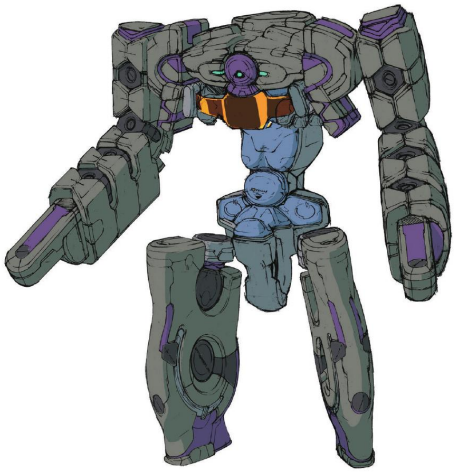
—When did you start thinking of the design for the fortified suit?

Yoshimune: It was a combat suit for something I thought up of in high school called 'mobile high school girls'.
To that, I then added pilot suits I designed for a Crusher Joe-esque novel my friend was writing during our high school days.
That had a space suit for pilots, which was used when piloting a space fighter, called the carrier-based destroyer, which was loaded on a 300m class space destroyer.
There was a life support system in the shoulder armor, and there was a waste pack around the lower back. Both of these are identical to the fortified suit.

—Then the exoskeleton was from a high school project of yours too?

Yoshimune: No, I had Niθ design the exoskeleton, after having told him the general concept image.
I recall asking him to include the feeling of the exoskeleton in 'Panzer Angel Gabriel' (★ 3), which was a project being undertaken by Studio Nue, as well as the Hardiman of General Electric.
I think my explanation was something along the lines of it being like an outer frame, and when it activates, the parts for the arms and legs attach to the seat, and it becomes the exoskeleton.
The reason why there's no armor on the front side is because it's a simplified version used for emergency escapes. That would be made up for by the bulletproof nature of the fortified suit. Something completely unexpected came back to me, and I was shocked, but in a good way.
This also applies to TSFs, but the joints are just unbelievably innovative.
I thought it was a really Niθ-esque design to smash apart the preexisting framework.

Type 89 Surface Pilot Mechanized Infantry Armor



★ 3: Panzer Angel Gabriel
A phantom piece, planned by Studio Nue in the 80's, with the goal of becoming a live action powered suit show. In 2008, a book called 'Panzer Angel Gabriel' was published by Laputa, loaded with the massive amounts of concept art from the initial project, and illustrations by Kato Naoyuki.

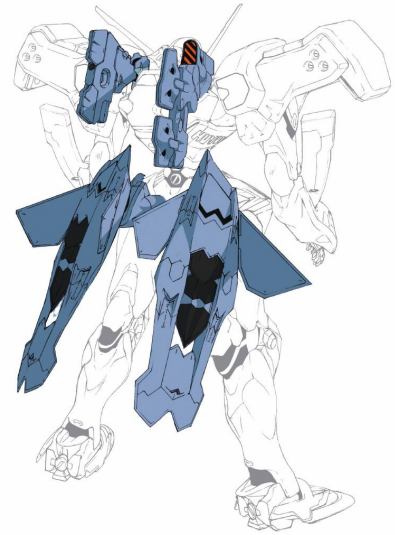
Niθ's Comment

It looks like people would poke at the designs and say how there must be some alternate dimensional space to be able to have all this fit in the cockpit. I want to poke at that too. [laughs]
In that case, well, like I said, it was a design I feel I couldn't organize nicely, and I still have regrets about it. But I quite like it as a singular mech design, as an interesting power loader. It's interesting since you can see the kinds of design lines I was into at the time.

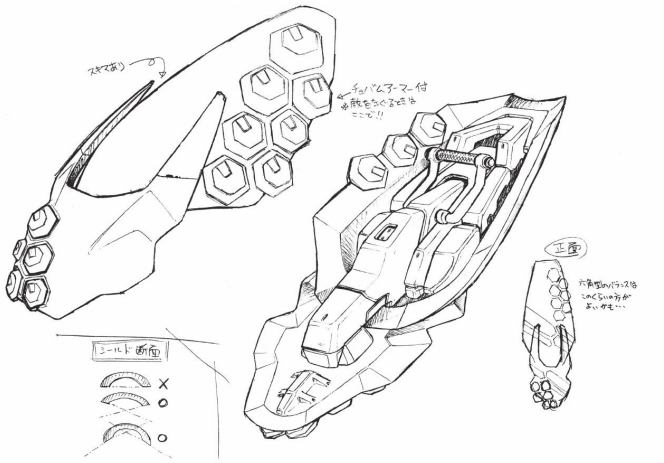
Muv-Luv Alternative
Interview with
Koki Yoshimune

Using The Design Lineage to Design Armaments and Jump Units

Koki Yoshimune Interview



Type 91 Boost Jump System



Type 92 Multi-Purpose Supplemental Armor

The Lineage Chart: The Basis for TSF Designs

—Next up, I'd like to ask Koki Yoshimune about the secrets behind the creation of things like lineage charts, and the designs for TSFs and armaments. First of all, had you thought of the development lineage chart from a stage before designing TSFs?

Yoshimune: I'm someone who bought MOBILE SUIT Illustrated every single year, you know? [laughs] Well, I stopped buying them around 2000 though.

It's important to depict the flow of development through a lineage chart. I've said this a few times now, but lineage charts are so important for me that I can't think of designs without them, so I made one during the initial stages of the project.

Fortunately for TSFs, with real aircraft as the motif, I could list them up without any concept art or images. So at first, I just made one by connecting the craft names with lines.

In regards to pictures, I would gather up any designs I made, even if they were just drafts, and fill in the blanks. Therefore, even without a completed image, there was at least a very messy draft for most craft.

Of course, there were cases where I would redraw them later.

If I didn't have rough designs for everything, I wouldn't have been able to finish designs for old-fashioned things, after having done the YF-23. [laughs]

—It must be difficult to go back to previous designs...

Yoshimune: Since TSF have an aspect to them that is like a thinking puzzle, where you project and convert the designs of real fighters onto them, you can't cut corners when recreating their lineage.

And since everything is technologically derived from American-made craft, the way you go about adding flavors unique to each country is symbolically important, and you need to be able to see the whole picture to understand that flow.

—That's quite realistic.

Yoshimune: It's not real. [laughs] This is entertainment.

The lineages are something similar to an 'obsession with details', or more like an attachment to them.

In reality, humanoid mechs would be impossible, and there's no way that so many varied craft would exist under that course of events. I'm sure that if it were real, everything would be F-4s and F-15s. [laughs]

But it's not fun if there aren't TSFs for each country.

GP03S Stamen: The Origin of the Jump Unit

—Where did you get the idea for jump units from?

Yoshimune: The inspiration is Katoki's Stamen (★ 4). The tail binder that also acts as a docking unit was revolutionary and innovative.

I think it's also logical, since having a thrust device on the waist can secure freedom of the upper body while accelerating.

Since TSFs were required to use aircraft as sources of inspiration, I also wanted to make it easy to see where the engine was mounted.

The TSF Knife Sheath and Its Aerodynamic Control Functionality

—What was the process leading up to the creation of the knife sheath?

Yoshimune: Initially, it was to give the TSFs a cool-looking design. During the stage where I was working on the concepts, I would think of things like aerodynamic characteristics, and functions like bumpers for cars to protect the airframe.

And then if you think something like, "Let's give it a knife!" You'd end up also thinking something like, "It needs a place to store it." [laughs]

Since the designers of that world would be making TSFs while battling things such as budget limits and weight restrictions, I've made sure to give multiple functions and purposes to anything I come up with.

—Then what about the mount pylon system on the backs of TSFs?

Yoshimune: It's a sub-arm that acts like the pylons that connect missiles to fighters. Since it's a robot, I thought that it would be fine to give TSFs more arms and joints than humans. [laughs]

But it's a good idea to use symbols that resemble people, if possible. And if you don't give them multiple roles, it doesn't feel like a TSF.

Therefore, it ended up being a mechanical arm that can not only hand the assault cannon to the manipulators, but can also deploy forwards and fire four barrels at once, or fire backwards. [laughs]

And then I wanted a slashing function like an Iai for the melee blade rack. And that's where Niθ came in. [laughs] He submitted the idea of the melee blade getting shot out forwards using an explosive ejection system, and that momentum being used for the first strike.

Niθ really is awesome.

—By the way, is the 36mm cannon of the TSF shot with the TSF pulling a trigger with its fingers?

Yoshimune: Of course not. [laughs] It's true that assault cannons have a part shaped like a trigger, but that only functions as a hook to fix it in place.

The cannon is fired via a signal sent to it from the connection point with the palm, and the actual controls are done through a trigger switch in the cockpit.

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Jigen Ryu: The Inspiration for the Melee Blade's Design

—The melee blade's hilt is curved away from the blade. Is that Jigen Ryu?

Yoshimune: Amazing! I'm surprised you worked that out. [laughs]
Originally, during the design stages, I wanted to make it similar to a Japanese sword, but if the handle is bent forwards, it limits the movement of the hands, so the katana stops while it's still facing upwards.
And then Jigen Ryu gave me a hint, to invert the handle, allowing the tip of blade to hit, even in situations where there isn't much space to swing it down.
I had Niθ refine an image draft, which was based on the blades from Eva. The blade, which goes in front of the handle, is good, isn't it!?

—How did the design for the Type 92 Multi-Purpose Supplemental Armor come to be?

Yoshimune: Hoshino did the design for that, so I don't know. [laughs] Though of course, I did make some requests, such as having its form be round and so forth.
On a side note, reactive armor was Hoshino's idea.

—The shield's tip is bent, so it can hit things.

Yoshimune: That's because I didn't want TSFs to be hitting things with their hands.

The Takemikazuchi Type-R: My Favorite Face Design

—The head modules for each craft are very complex.

Yoshimune: A face is as important as the life of a robot. [laughs] The amount of information portrayed on the face is super important. Even Volks said that they wanted five different perspectives of the face drawn.
I get asked a lot by staff members of my company if there was any meaning behind the difference in the visor between the R and F types of the Takemikazuchi. In return, I ask them, "How big do you think a TSF's head actually is?"
It's true that if you look at it as a picture, there's only a subtle difference. But it's the head of a robot that is over 18m tall, you know? Even though it's a small picture, I want it to be depicted while picturing that kind of largeness.
Staff members who weren't convinced eventually were, once they saw the Gundam at Odaiba. [laughs]
If you have fine details on the body, it loses its sense of scale, but I always made sure to raise the level of detail just for the face. Their appeal when there's a close-up is really important.

—By the way, while on the topic of faces, which TSF face do you like the most, Yoshimune?

Yoshimune: That would definitely be the Takemikazuchi Type R. [laughs]
After all, you normally wouldn't be able to have something you personally think is cool be turned into a picture. Praising one's own work isn't something that can easily be done by a human being let alone a working man.
But a rare talent like Niθ made a robot I drew, with my preferences, into something exceedingly cool, you know!? [laughs]
Since it's had someone else's work put into it, I can proudly say, yes [laughs], the Takemikazuchi R is the best!!

> I've thought of all kinds of things like 4th and even 5th-generation TSFs.
> ——Koki Yoshimune

—What do you like about it in particular?

Yoshimune: The fact that it looks like a shark and a samurai.

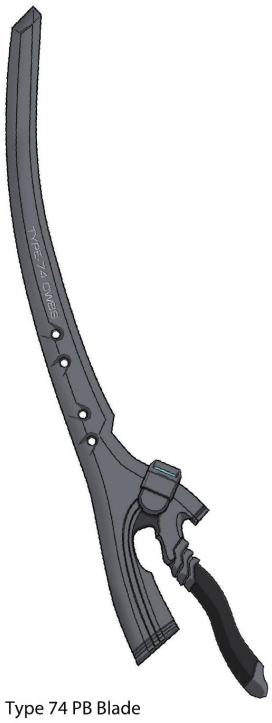
—What about other TSF faces you like?

Yoshimune: Although it takes a different kind of direction, I like the F-15 ACTV.
When I saw its finished design, I was strongly reminded that the approach of the design changes based on the characteristics of the designer.
The eyes and stuff are really cool!
Fujirou is a genius of industrial-styled mech designs!

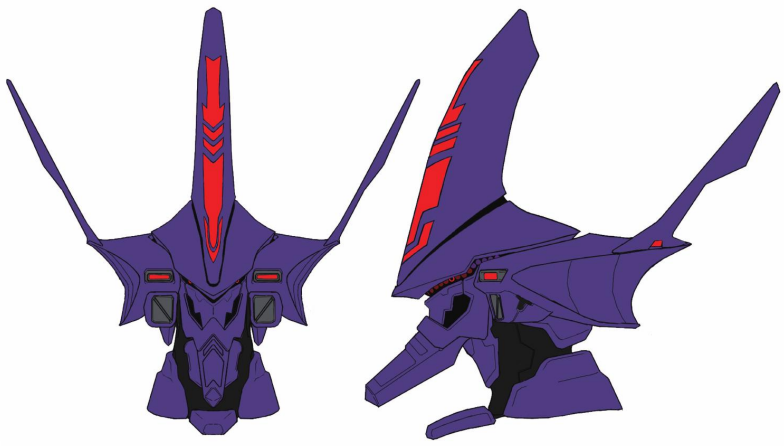
—Finally, I'd like to ask if there are any plans for 4th-generation TSFs...

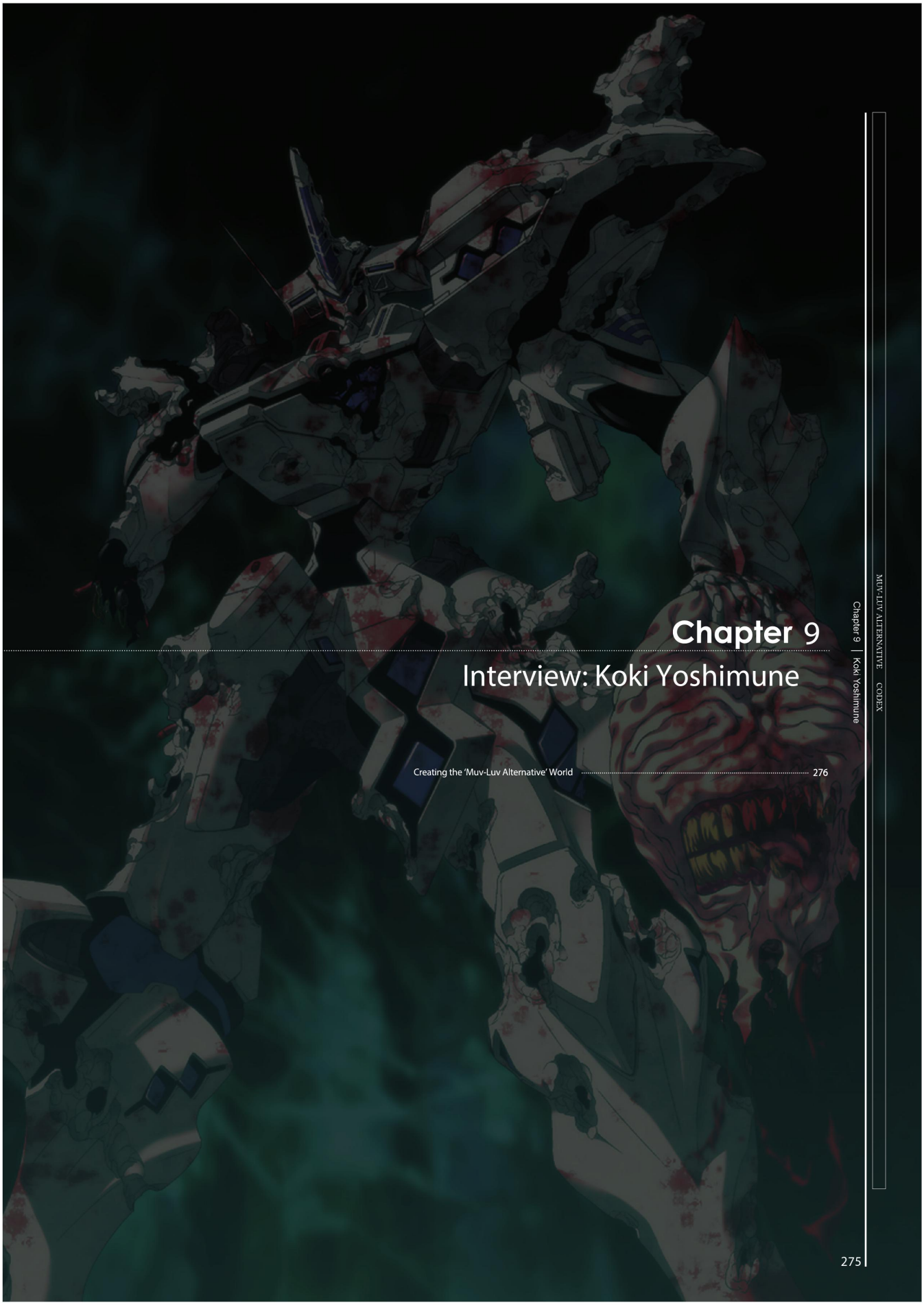
Yoshimune: Since I had already been thinking of a sequel to Alt while making it, I've thought of all kinds of things like 4th and even 5th-generation TSFs.
All while thinking about things like the lineage charts, historical backgrounds, national strategies, and technological developments.
If I were to touch on any specific topic, that would be a spoiler for 'Alt 2' so I'll stop, even though I'm not sure I'll make it in the first place. [laughs]
Before, when I spoke of Total Eclipse's story during the business function for it, everyone got mad, saying that they'd rather not have heard the spoilers, so well... I guess it should be enough to know that there are plans for next-generation TSFs.
If I spill all the beans, that would take the fun away from everyone fantasizing about it. [laughs]

★ 4: GP03S Stamen
A prototype space combat mobile suit of the Earth Federation Forces, which appears in 'Mobile Suit Gundam 0083: Stardust Memory'. Its code name is 'Gundam Dendrobium'. It conducts fire control and airframe control by docking the 'Armed Base Orchis', via the tail binder located on the waist of the Stamen, its core module.



Type 74 PB Blade


Takemikazuchi Type 00R's Head Module



Chapter 9

Interview: Koki Yoshimune

Creating the 'Muv-Luv Alternative' World 276

★ 1: Orbit Divers
This refers to orbital drop corps. They're rough and reckless bastards who fall from satellite orbit and directly hit the enemy headquarters. Their activities are extensively detailed in 'Chicken Divers'.

★ 2: GENERAL PRODUCTS
A specialty store that opened in Osaka in 1982, which produced and sold goods related to sci-fi, tokusatsu, and animation. Its founder was Okada Toshio.

★ 3: DAICON FILM
A group that produced independent films in the animation and tokusatsu genres. Okada Toshio, the founder of GENERAL PRODUCTS, was involved in it, as well as Anno Hideaki, who is famous for being the director of 'Neon Genesis Evangelion'.
The 'DAICON III Opening Animation', was produced for the 20th Japanese Sci-Fi Competition (commonly known as DAICON III). It became a hot topic as it was of a quality beyond those of independent movies.

★ 4: Starship Troopers
A movie based on the sci-fi novel of the same name by Robert A. Heinlein. Three movies were produced, with a different director for each. The characteristic power suits appeared in the third film, 'Marauder', though their design was altered from the original text.

★ 5: CG Animation Series
Referring to the 3D CG animation 'Roughnecks: Starship Troopers Chronicles'. Paul Verhoeven, the director of the first film, was the executive producer of this series. Operations lasting approximately five episodes were conducted on each of eight planets, for a total of forty episodes.

★ 6: Hajimari no Wakusei (The Planet of Beginnings)
A sci-fi manga that was serialized in Cyber Comics, a collection of anthology comics exclusively for robot anime that were published by Bandai. It took inspiration from the novel Starship Troopers and even features powered suits.

★ 7: Space FBI
A sci-fi masterpiece series, published by Kaisei-Sha. It was originally based on 'Star Trail to Glory', one story in the 'Captain Future' series, by Edmond Hamilton. This title was changed to 'Space FBI' after it was adapted for a younger audience. Captain Future is a space opera, about its eponymous hero Curtis Newton, a scientist and adventurer, along with his colleagues, Simon, Grag, and Otho. In Japan, a TV anime of it was produced, and it aired a total of 52 episodes, starting from 1978.

★ 8: The Voyage of the Space Beagle
A sci-fi novel written by A. E. van Vogt. In it, the large spaceship 'Beagle' departs to explore space and encounters unknown extra-terrestrial life forms. As a side note, the name 'Beagle' is the name of the expeditionary ship boarded for five years by Charles Darwin, famous for his work on the theory of evolution.

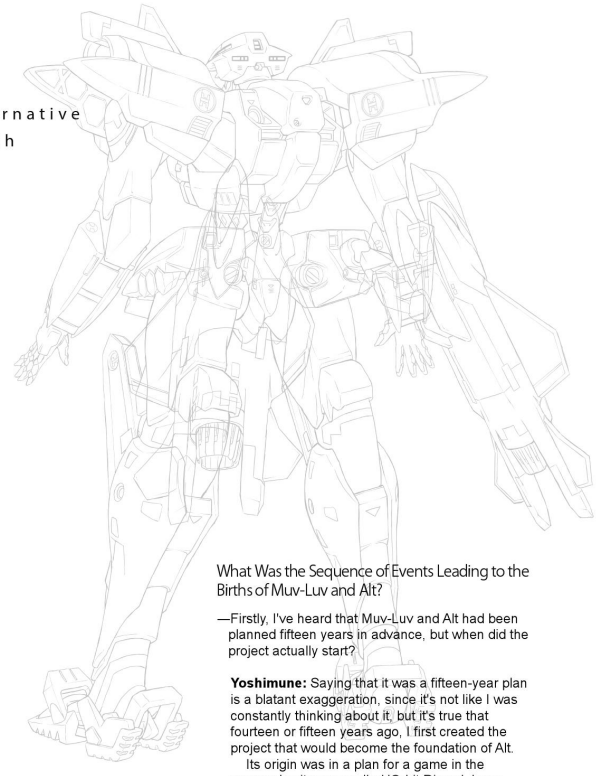
★ 9: Farewell to Space Battleship Yamato
The second feature film of 'Space Battleship Yamato'. Its plot revolves around a battle between Space Battleship Yamato and the White Comet Empire, which had been built inside a massive comet. Many spaceships appear in this piece, but in particular, the Andromeda, a battleship from the Earth fleet, is highly popular due to its design and its role in the movie.

★ 10: Galaxy Express 999
A manga by Matsumoto Leiji. It is a sci-fi piece set in a world where a train, the Galaxy Express, runs between planets.
It centers around Hoshino Tetsuro, who boards the fastest train of the Galaxy Express, the 999 (Three Nine), and Maetel, the mysterious woman who guides Tetsuro as they encounter various lifeforms in the galaxy. The TV anime aired between 1978 and 1981, and it was so popular that three feature films were produced for it.

★ 11: The Rose of Versailles
A manga by Ikeda Riyoko. It is a fictional work based on the lives of Oscar, a beautiful woman dressed as a man, and Marie Antoinette, the Queen of France under Louis XVI. It is based on the events just before the French Revolution. It was adapted into a stage play by the Takarazuka Revue, and with its success, it had a TV anime and cinema film produced for it. It became so popular, it caused a social phenomenon.

★ 12: Space Runaway Ideon
A TV anime by director Tomino Yoshiyuki. In a future where emigration into space was taking place, humans on a colony planet discover a massive humanoid mech, Ideon, powered by the unknown energy 'Ide'. On the same planet, they come into contact with aliens known as the Buff Clan, who had been searching for that power. Due to a misunderstanding with them, an Interstellar war breaks out between humans and the Buff Clan. Its unique machinery and themes are characteristic of it, and even now it has many fans.

Muv-Luv Alternative
Interview with
Koki Yoshimune



Creating the 'Muv-Luv Alternative' World

Part 1 Koki Yoshimune's Influences

We directly ask Koki Yoshimune about how the concept of Alt's world was created, following the secret stories behind the creation of Alt's machinery.
How were the concepts of BETA and TSF formed?
And what was the prototype of Alt, which was born fifteen years before this interview—

Koki Yoshimune

The representative of âge, who took on the roles of scenario, setting, direction, and executive producer for Kimi ga Ita Kisetsu (hereafter 'Kimiita'), Kimi ga Nozomu Eien (hereafter 'KimiNozo'), Muv-Luv, and Muv-Luv Alternative (hereafter 'Alt').

Nanjo

A staff member of the Alt team at âge.
His roles included writing some articles in Integral Works.

What Was the Sequence of Events Leading to the Births of Muv-Luv and Alt?

—Firstly, I've heard that Muv-Luv and Alt had been planned fifteen years in advance, but when did the project actually start?

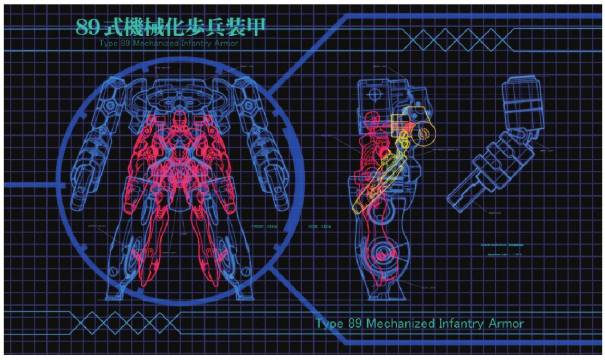
Yoshimune: Saying that it was a fifteen-year plan is a blatant exaggeration, since it's not like I was constantly thinking about it, but it's true that fourteen or fifteen years ago, I first created the project that would become the foundation of Alt.
Its origin was in a plan for a game in the powered suit genre called 'Orbit Divers'. I was thinking of submitting a project outline of it to an in-house competition for a game developer I was working for at the time.
Things like the background setting of the BETA were adapted directly from that project.
It was about a survival story in a war that had already been lost, featuring a protagonist from an infantry unit in space, much like the Orbit Divers (★ 1) that appear in Alt. He helps the heroines escape from the colony planet, which was under attack from unknown life forms. It was essentially 'Starship Troopers'. [laughs]

—Come to think of it, there were quite a few points of comparison between Starship Troopers and Alt, such as there being a training period, and there being lifeforms from space, which kept advancing in droves, and which people couldn't communicate with.

Yoshimune: It kind of went like this. Starship Troopers got me interested in sci-fi, and then I learned about Studio Nue, so Starship Troopers was the work that acted as the origin of my otaku life. [laughs]
That's why I have such an unconditional interest in stories like that. [laughs]
At the time, I was really excited by things such as the member exclusive metal kits made by GENERAL PRODUCTS (★ 2), and the first time I saw powered suits moving in DAICON FILM (★ 3).
I thought the anime version by Sunrise, which was controversial among fans, was okay for what it was. [laughs]
Even now, I can't help but get my hands on everything related to Starship Troopers series from the film directed by Verhoeven (★ 4) and the CG animation series (★ 5), all the way to garage kits and figures from many manufacturers.
The spin-off I like most is the manga by Kio Seiji called 'Hajimari no Wakusei' (★ 6).

—What about after you encountered Starship Troopers?

Yoshimune: Since the middle to higher grades of elementary school, even though I was primarily influenced by film, I became increasingly influenced by books, and so, during reading times, I'd always choose to read sci-fi.
There was a lineup of hard cover book series, like shounen sci-fi book collections. I liked ones such as 'Space FBI' (★ 7) and 'The Voyage of the Space Beagle' (★ 8).



Out of those, the 'Nippon Kodomo Yugekitai' (The Japanese Children's Flying Forces), was intense. [laughs]

I received a traumatic shock from that left-wing, children's sci-fi story. [laughs]

It was like I was in carelessly high spirits, like, "mechs are cool", and "sci-fi is cool", before it struck me with the fact there was more to it than that. Immediately afterwards, I received the same shock again from 'Space Battleship Yamato' (hereafter 'Yamato') and 'Invincible Super Man Zambot 3' (hereafter 'Zambot'). [laughs]

> Its origin was in a plan for game in the powered suit genre called 'Orbit Divers'.
>
> ——Koki Yoshimune

Nanjo: I read 'Nippon Kodomo Yugekitai' after borrowing it from Yoshimune, but I found it amazing for cramming in all of its powerful, leftist, and ironic messages. [laughs]

In a sense, I think it's the closest thing to Alt's roots.

Yoshimune: Disregarding the political agenda, I think it was the first work that really let me understand the complex and mature circumstances of there being something beneath the surface.

In that sense, it might be one of the roots.

—Was there anything after that traumatic shock?

Yoshimune: In regards to anime, no matter what people say, it has to be 'Farewell to Space Battleship Yamato' (hereafter 'Farewell') (★ 9). [laughs]

The two movies, 'Galaxy Express 999' (hereafter 999) and 'Adieu Galaxy Express 999' (★ 10) were good too.

After that, I liked things such as 'Mobile Suit Gundam' (hereafter 'Gundam'), 'The Rose of Versailles' (★ 11), and 'Space Runaway Ideon' (hereafter 'Ideon') (★ 12). [laughs]

I feel like my tastes were solidified, especially by the combination of Zambot, Farewell, and Ideon. [laughs]

By that time, I considered robot anime as the only type of sci-fi, and from the perspective of a sci-fi lover, I was going full-speed down the road of corruption. [laughs]

In the 'real robot' boom of the 80's, following Gundam, I was using video tapes to the fullest to watch almost all of the 'real robot' genre shows such as 'Super Dimension Fortress Macross' and 'Genesis Climber MOSPAEDA' (★ 13).

At the time, no matter where you looked, there was a robot anime being aired. You can only dream about that today.

I can't measure how much I was influenced by works of that era. I'm not sure if the age I was born in was good or bad.

I feel like it's a really valuable asset that I experienced the dawn and rapid change, or rather, the impact of the transition of otaku culture.

—Come to think of it, it's true that a while ago, there were more sci-fi anime.

Yoshimune: A while ago, TV anime went on for a whole year, so they physically made an impression on you.

On top of that, they were irresistible since sequels were so common.

I got really hard for saga works like 999 and Yamato, which were great collections of Matsumoto Leiji's characters.

After seeing the tragedy of the Earth fleet in Yamato, the Earth fleet in Farewell is so cool that it's blinding, and you feel like 'mankind's finally come this far!'. [laughs]

I'll never forget the impact of when I saw Andromeda (★ 14) for the first time in an article on Farewell in Animage!

I thought that Yamato ended up looking so cool [laughs]!

—I've heard that the Susano-O is an homage to Andromeda.

Yoshimune: For the Susano-O Mk. IV, humanity's trump card, I decided in my heart that I would take on that design no matter what.

Personally, Andromeda is not only beautiful, but it reigns the seriously awesome throne of 'the strongest space battleship in human history'. [laughs]

Much like the Mk. IV, the Mk. II is an homage to the 'Main Battleship' (★ 15), and so the dispersion wave motion gun—I mean [laughs], the edges of the charged particle cannon's muzzle is cream colored.

—What about works that aren't anime. I think that Alt has all kinds of elements from sci-fi novels other than Starship Troopers, right?

Yoshimune: That's right. We'll be jumping across eras, but I've often read works by Asimov (★ 16), Heinlein (★ 17), Clarke (★ 18), and Hogan (★ 19).

I was especially surprised by how Asimov's worlds were shared, and how independent works were set in the same universe, as seen in the 'Foundation' series (★ 20) and 'Robot' series (★ 21). That method of releasing individual works along a single timeline had a big impact on me.

Other than that, I was influenced by the power suit genre, with works such as 'The Forever War' (★ 22), and 'Ender's Game', which were the foundations of 'Gunbuster'.

I like works that involve wars with aliens caused by dysfunctional communication, and works about first contact, so I've read quite a few others too.

When the plan for Alt had shifted from the power suit genre to a school setting with parallel worlds, I was influenced by 'End of an Era' (★ 23), written by Sawyer (★ 24), and many more of his works.

As an example, there was an homage to the scene in Ender's Game where the protagonist thought that he had cleared the final game, but then he won the war and the generals around him were all shaking hands, crying, and embracing each other.

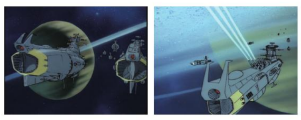
This was embedded into the CG after Operation Cherry Blossom in Alt, with Pyatkh crying, the officers behind her hugging each other, and the commander staring at the monitor alone, having accepted the sin of sending young people into the jaws of death.

★ 13: Genesis Climber MOSPAEDA
A TV anime that aired in 1983. The character designs were done by Amano Yashitaka, of 'Final Fantasy' fame. It is a story about the actions of young people trying to take back Earth from aliens called the Inbit. The idea of the protagonists' bikes transforming into powered suits was novel. There are scenes that closely resemble Alt, such as forces descending onto Earth to recapture it.



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★ 14: Andromeda
A space battleship that appeared in 'Farewell to Space Battleship Yamato'. The flagship of the Earth fleet, it was newly built after the reconstruction of Earth. Two dispersion wave motion guns are mounted on the bow, which are said to have firepower beyond that of the Yamato.



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★ 15: Main Battleship
A space battleship that made an appearance in 'Farewell to Space Battleship Yamato', much like the Andromeda. As its name suggests, it was a mass-produced battleship that acted as the main force of the Earth Defense Force Fleet. It has a single dispersion wave motion gun equipped to its bow. One version has a flight deck on its stern.

★ 16: Isaac Asimov
A prolific author of over 500 works, across a myriad of genres, from sci-fi to mystery. He created the famous 'Three Laws of Robotics' in 'I, Robot'. His most prominent works include the Foundation series, and Nightfall. The Three Laws of robotics are that:

(1) A robot may not injure a human being or, through inaction, allow a human being to come to harm.

(2) A robot must obey orders given it by human beings except where such orders would conflict with the First Law.

(3) A robot must protect its own existence as long as such protection does not conflict with the First or Second Law.

★ 17: Robert A. Heinlein
A maestro of sci-fi novels. Starship Troopers is a famous work of his, which depicts a battle between humans and spider-shaped aliens. Other than that, his popular works include 'The Door Into Summer' and 'Stranger in a Stranger Land'. On a side note, he has won the Hugo Award four times. This is the most prestigious award in the sci-fi world. Starship Troopers was adapted into a movie of the same name, and in Japan, it was adapted into an anime by Sunrise.

★ 18: Arthur Charles Clarke
A sci-fi writer and a science commentator. He was called one of the 'Big Three' of science fiction alongside Asimov and Heinlein. His most prominent work, '2001: A Space Odyssey', is hailed as a sci-fi masterpiece and is incredibly famous. It and its sequel, '2010: Odyssey Two' have been adapted into films.

★ 19: James Patrick Hogan
He has published many hard sci-fi works, with a focus on elaborate scientific descriptions. 'Inherit the Stars' is both his debut and most prominent piece. It has received the Seiun Award, a Japanese science fiction literary prize. Other than this, his 'Lifemaker' series is also famous.



Author : Isaac Asimov

★ 20: Foundation series
Isaac Asimov's most prominent work. It is a grand tale about the prosper and decline of the Galactic Empire. It is made up of seven novels: Foundation, Foundation and Empire, Second Foundation, Foundation's Edge, Foundation and Earth, Prelude to Foundation, and Forward the Foundation.

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Author : Isaac Asimov

★ 21: Robot series

A series of sci-fi novels with a robot theme, written by Isaac Asimov. This series includes novels such as 'The Caves of Steel', 'The Naked Sun', and 'The Robots of Dawn', many of which are woven into the mystery genre. On a side note, the previously mentioned 'Foundation' series is set in the same world as the novel 'Robots and Empire'.



Author : Joe William Haldeman

★ 22: The Forever War

A sci-fi novel by Joe William Haldeman. It is about an interstellar war against aliens, and like Starship Troopers, it is also highly popular. The aspect where several decades had passed, once the soldiers chosen as elites returned home after combat, is depicted in 'Gunbuster'.



Author : Robert James Sawyer

★ 23: End of an Era

A novel by Robert James Sawyer, in which a scientist travels to the Mesozoic era using a time machine to investigate the cause of the dinosaurs' extinction. It is an interesting work with a unique world setting and premise, such as talking dinosaurs.

★ 24: Robert James Sawyer

He has written many sci-fi work that explore mysteries, as well as psychological aspects of humans, such as the conflict between science and religion. His prominent works include 'Terminal Experiment', which won the Nebula award, and 'The Neanderthal Paradox' trilogy, consisting of 'Hominids', 'Humans', and 'Hybrids'.

★ 25: Devilman

A manga and TV anime by Nagai Go. It is based on 'Demon Lord Dante' by the same author. The story of Devilman is different in both the manga and anime versions. It is a grand story about the extinction of humanity, and it became popular to the point where even now, many consider it a masterpiece.



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★ 26: Senjou (Battlefield) manga series

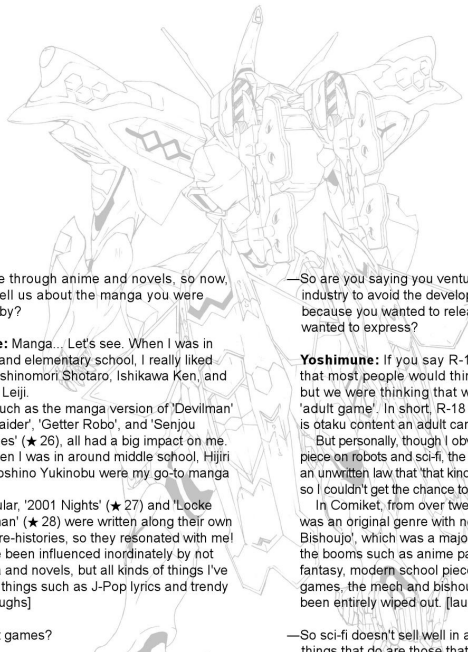
A manga by Matsumoto Leiji. This set of works explores the actions of people in battlefields. Nine volumes have been released in total, with some such as 'Knight of the Iron Dragon' becoming animated. Furthermore, in 'Arcadia of My Youth', there are cameo appearances suggesting links to other works, such as an ancestor of Harlock from the TV anime, 'Captain Harlock', by the same writer.

★ 27: 2001 Nights

A manga by Hoshino Yukinobu about mankind's embarkation into space. It allows readers to enjoy a unique sci-fi world, with technology such as the 'human seeding program', where frozen sperm and eggs are placed into spacecraft to be fertilized on habitable planets in order for mankind to migrate, as well as the 'Myu Drive', which is a method of navigation using black holes.

★ 28: Locke the Superman

A manga by Hijiri Yuki, featuring the eponymous hero, Locke, an immortal esper. A characteristic of the manga is that it forms a single timeline over many episodes, depicted in jumbled time periods. Originally, it was announced as a doujinshi but it debuted in a commercial magazine in 1978 and has become a long-lasting piece, still being serialized today.



—We've gone through anime and novels, so now, could you tell us about the manga you were influenced by?

Yoshimune: Manga... Let's see. When I was in pre-school and elementary school, I really liked Nagai Go, Ishinomori Shotaro, Ishikawa Ken, and Matsumoto Leiji.

Manga such as the manga version of 'Devilman' (★ 25), 'Kikaider', 'Getter Robo', and 'Senjou Manga Series' (★ 26), all had a big impact on me.

From when I was in around middle school, Hijiri Yuki and Hoshino Yukinobu were my go-to manga artists.

In particular, '2001 Nights' (★ 27) and 'Locke the Superman' (★ 28) were written along their own unique future-histories, so they resonated with me!

Well, I've been influenced inordinately by not only manga and novels, but all kinds of things I've seen, even things such as J-Pop lyrics and trendy dramas. [laughs]

—What about games?

Yoshimune: I bought a NES, SNES, and a TurboGrafx-16, in that order, and I also bought a Sega Genesis just to play 'Advanced Military Commander' and 'Target Earth'. [laughs]

Even after that, I continued to be manipulated by these hardware companies, which forced me to buy the PlayStation, Saturn, and Neo Geo.

My personal otaku-esque favorite is the TurboGrafx-16. It's a masterpiece, which boasted many breakthrough games such as 'Zero4 Champ'(★ 29) and 'TokiMemo'(★ 30). [laughs]

Even now, we always have a Turbo Duo in the âge conference room, to play my favorite, 'Spriggan Mark 2' (★ 31).

Spriggan Mark 2 has been turned into a figure recently by Shokugan, but the game's opening is the best. Even now I still watch it.

Do you want to see it? [laughs]

The Turbo Duo is always connected, so you can watch it whenever you want. [laughs]

[They begin watching]

Yoshimune: This opening—how is it?! The music's good, and more than anything, they're doing all that just by using scripts (★ 32).

The launch scene is especially superb. They create a sense of rising up, through the parallax scrolling (★ 33).

And it's surprising how they're doing all of this with pixel art. In terms of the idea, I think AGES still hasn't surpassed this. [laughs]

[They finish watching]

Yoshimune: In a sense, it might be fine to say that this is the direction that âge's display engine, AGES, was aiming for.

The direction is a modern version of this, or rather, to come up with ideas within set restrictions. If you try to aim for the top with 3D, Hollywood becomes your competitor. Once that happens, small groups like us can't cope anymore [nervous laugh].

But that doesn't matter to the customers who are used to Hollywood effects, and they'd try to force us into that same ring.

There was a case where a senior person from a Sony Computer Entertainment subsidiary company contacted me to work together during the development stages of the PS2, but since there were many restrictions, I couldn't do what I wanted to express, so I chose the PC adult game market instead, after discussing it with âge's founding members.

Though obviously, the scale of this market was smaller.

—So are you saying you ventured into the R-18 industry to avoid the development race spiral, and because you wanted to release something you wanted to express?

Yoshimune: If you say R-18 in Japan, I'm sure that most people would think of 'pornography', but we were thinking that we wanted to make an 'adult game'. In short, R-18 only in a sense that it is otaku content an adult can enjoy.

But personally, though I obviously wanted to do a piece on robots and sci-fi, the industry at the time had an unwritten law that 'that kind of genre wouldn't sell', so I couldn't get the chance to develop it.

In Comiket, from over twenty years ago, there was an original genre with no ero called 'Mech and Bishoujo', which was a major force. But through the booms such as anime parodies, the rise of ero, fantasy, modern school pieces, and fighting games, the mech and bishoujo genre has almost been entirely wiped out. [laughs]

—So sci-fi doesn't sell well in an age where the only things that do are those that intuitively resonate with the readers, as opposed to those that you have to read to understand the background setting?

Yoshimune: That's right. In our generation, sci-fi terms such as time dilation (★ 34) were common knowledge, so it never needed to be explained, but I wonder if that's still true for this generation?

Of course, the R-18 industry would be influenced by booms like that, and in particular, you'd often see a trend where things that are popular in anime or manga are made into ero versions.

By the time my generation entered the industry, sci-fi, robots, vampires, and even fantasy as a whole were avoided, as genres that wouldn't sell, no matter what.

And at the time, I was developing games under the plans of another staff member who liked bishoujo games, but as a result, we were only able to hover around 10,000 copies sold.

Personally, I had a recurring question: Can a weak developer, who is also a latecomer, stick to these methods? But I was told that the eroge industry is special, so I never said anything about it.

When I started working, I swore I would quit if we didn't get anything that sold in three years, so by the second year, I decided to speak my mind. I brought up the idea of sugar-coating a risky piece, rather than making a safe piece. [laughs]

I brought up car designs as an example, saying that instead of starting with a safe design from the beginning, they start with a sketch of an extreme concept and round the edges from there. That changed the approach of development and plans, and I was able to temporarily halt the plan for the next game, a romantic comedy in a school, which was going to be paired with KimiNozo, and I brought the discussion back to the point of what kinds of games we wanted to make.

And then, Baka Ouji, the director of the company at the time, said he wanted to make a robot piece, like the novel 'Yukikaze'.

I suddenly got really excited like, "Huh? So you're saying we can do a robot piece?".

After all, I've loved mechs and robots ever since childhood. [laughs]

That's why I started to get impatient while listening to the in-house project competition. So I started to meander with something like... "Ah, Yukikaze, right?

I get it, I get it. Silicon life, right?

Right, right.

Oh, can you leave that to me, yeah, hey, can you get out of my way there?" And when I came to I was leading the planning session...

[Everyone laughs]

Yoshimune: And this is where the story finally comes full circle. [laughs] Here, I started to think of using the fundamental concepts of Orbit Divers, the project I was planning during my time in the consumer industry.

Once I decided on that, I suddenly wanted to have things from the classics, like 'Starship Troopers', and 'The Forever War', and I also wanted to throw in 'Footfall' (★35).
And of course, you can't not include Zambot in there either. [laughs] You'd want that empty feeling and powerlessness of its ending. [laughs]
The shock of thinking that the enemy's boss, Bandok, had been defeated, and then finding out that there were tens of thousands of Bandoks in existence, since its identity was a system to maintain order in space, and exterminate bad cultures!

They finally won, after their family, cousins, and even grandparents died in suicide attacks, and Zambot being destroyed, but then they were pressed with the declaration that mankind was the enemy all along, and that there were tens of thousands of final bosses, you know? [laughs]

To make matters worse, the protagonists who had defended mankind become resented and looked down on, like, "because you're here, Bandok came here. Leave the Earth."

Tomino really is ruthless. [laughs]

It was burned into my heart as a child, and the trauma has lingered all this time.

So in the beginning, I wanted to have the impact of that ending, and also illustrate the way of life and death of the character Meiya. Then I began thinking of how to add a story to that, and what kind of coating to give it, in order to turn it into a commercial product, and sell it.

> I wanted to illustrate the way of life and death for a character.
>
> ——Koki Yoshimune

—Even your sales strategy was novel or the industry at the time.

Yoshimune: I had set up a schedule for the year for how to sell it. During the remaining two years of my three-year deadline, I decided on things such as how to display our advertising and when to deploy side stories and demo KimiNozo and Muv-Luv were opposite approaches to the same theme, but âge's way of making games is generally to have their worlds neighboring each other, so they're also connected to Kaseki no Uta and Kimi ga Ita Kisetsu.

I think this was âge's biggest characteristic at the time.

Through a shared world, the development costs would be cheaper, and you can share the BGM in a way that also aids direction.

I think that from a player's perspective, it will help them guarantee a sense of security for the title, and that would make it easier for them to try out the games.

We focused especially on creating a sense of good value, in terms of content, which wouldn't be influenced by preference.

Though, we ended up causing a lot of trouble for the players, with our repeated release delays. [nervous laugh]



★29: Zero4 Champ
A racing game released in 1991 for the Turbo-Grafx-16, by Media Rings. It involves winning races, called 'Zero4s', where racers compete to sprint 400m as fast as possible, and it gives players the opportunity to tune their beloved car while aiming to be the fastest racer in Japan. Players could get heated over how much they could compress their time, but what was even more heated were the mini-games that were included as bonus content.

★30: Tokimeki Memorial
Abbreviated as 'TokiMemo', this is a dating simulation game released by Konami, in 1994, for the TurboGrafx-16. The goal of the game is to become friends with the girls who attend your school and eventually have them confess to the player under the legendary tree. There was not much interest in the game before its release, but hype quickly spread through word-of-mouth about how fun it was and it would eventually become a popular series, spawning numerous spinoffs.

★31: Spriggan Mark 2
A shooting game released in 1992 by Kaga Create, for the Turbo-Grafx-16. It involved controlling the player character, a robot, and defeating enemies while changing weapons.
The game itself was very well made, but its story and effects, which showed the battle between Earth and the Mars Independence Army, were excellent. In particular, the scene where the player engages in a one-on-one fight against the rival craft, using only a beam saber, is a masterpiece.

★32: Script
Programming languages, which dictate actions by software, are called scripts. Nowadays, it is possible to account for complex actions, but at the time of release, only simple movements were possible. Therefore, skillful techniques were required for complex direction of effects and scenes.

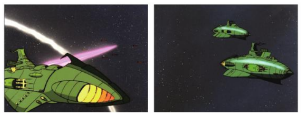
★33: Parallax Scrolling
A technique used in video games, where images are stretched or compressed vertically, or bent sideways, to create several effects. It was often used in backgrounds and effects in shooting games.

★34: Time Dilation
A term describing the 'slowing of time' in the special theory of relativity. Simply put, the faster an object moves, the slower time passes for that object, compared to an observer moving that is either moving at a slower speed, or is stationary. Essentially, the passing of time depends on speed. It is sometimes called the Rip Van Winkle effect.



Author : Niven & Pournelle

★35: Footfall
A novel by Larry Niven and Jerry Pournelle. A distinctive work, where the people who are fighting the aliens plotting to invade Earth are sci-fi writers. It is full of comedic parts, such as the aliens being shaped like elephants. It is interesting to see the sci-fi writers propose their strategies against the aliens as if they were brainstorming for their own novels.



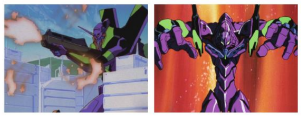
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★ 36: Destroyer
A spaceship of the Gamilas Empire, which appeared as an enemy in Space Battleship Yamato. These destroyer-type vessels form the main force of the Gamilas Empire. Other than these, high-speed cruisers and missile destroyers also exist.

★ 37: Spectreman
A tokusatsu show that was broadcasted in 1971. The show followed the battle between Spectreman and the invaders from space, Space Apeman Gori. It was extremely popular as a hard tokusatsu show, since it wove the issue of pollution into its story, which was a hot topic of the time, and also had cruel depictions and effects. However, pollution as a theme was poorly received by its sponsors, and it ended up going through three major revisions during its broadcast, which also changed its title.
Genius Monster Noman appeared in episode 47, 'Bobby, Don't Become a Monster!!', and episode 48, 'Tragic Genius Monster Noman'. He was a man who received surgery to become a genius, but was instead turned into a monster and began attacking people to eat their brains. In the end, he asks Spectreman to kill him, and is defeated.

★ 38: The Return of the Living Dead
A horror movie released in 1985, where the protagonist, out of curiosity, goes to see a zombie held at a medical company, but ends up being bathed in a gas that revives corpses and turns them into zombies.The movie involves the city gradually being buried in zombies after the gas turns the corpses in the building to zombies. The zombies have names, such as the 'Zombie Tarman', who was pickled in coal tar, 'Obanba', an old woman zombie who is just a torso, and the bald 'Hagen Tough'.
However, these names were given to the zombies without permission by the Japanese distributor of the film.

★ 39: Alien
A sci-fi horror movie released in 1979, in which a cargo ship catches a distress signal and encounters an unknown lifeform on the planet they visit. Although they save a crew member who was being attacked, and bring him onboard, a parasite alien appears in him and attacks other crew members, one by one.
The Alien, designed by artist and designer H.R. Giger, became a hot topic.



©GAINAX/Kara

★ 40: Evangelion
A TV anime that aired in 1995, and was set in a world fourteen years after a calamity in the South Pole called the 'Second Impact', which caused terrible damage. It is a drama that follows the troubles and growth of Ikari Shinji, a fourteen-year-old boy who belongs to the special organization NERV, which was created to oppose the threat known as 'angels'.
Its story, packed with foreshadowing, and its unique characters both gave it an explosive popularity, even turning it into a social phenomenon.



©GAINAX/Kara

★ 41: Lilith
A mysterious being that appeared in Neon Genesis Evangelion. He is crucified in Terminal Dogma, the deepest part of NERV HQ. It looks like a white giant, with a seven-eyed mask. However, it is only a torso and there are countless spherical bodies on its stomach, from which the bottom halves of humans appear to be growing.



Creating the Muv-Luv Alternative World

Part 2 How Was the World Concept of Alt Created?



Destroyer-class BETA

The Origin of the Background Setting

—How did you come up with Alt's setting and story?

Yoshimune: I'm a sci-fi writer, even if I'm not a particularly good one, so I'd like to prepare a plausible excuse if I was going to have robots in a story.
Anyhow, I aimed to make a title that had the fewest 'convenient excuses' of all robot works so far, or rather, one with the most amount of plausible reasons for having robots.
Firstly, I added the background concept of all aircraft being neutralized by lasers onto the preexisting base concepts of 'Orbit Divers'.
Later, I wanted to add lots of ideas. For example, I wanted power suits in it, so I kept adding in things like having the power suits as an escape system for the robot's cockpit.

Nanjo: So that's the exoskeleton.

Yoshimune: That's right. I had been thinking for a while that, in regards to robot anime, they don't often think about ejecting or what happens afterwards.
It's really important to bring back an experienced pilot from the battlefield alive, right? I thought of a lot of things like if it would be good to be able to break out of the interior if trapped inside.
Although it ended up a kind of world where if you had to escape like that, you were more likely going to die than before. [laughs]
But without that level of despair, it wouldn't feel as sharp, so I kept it like that. [laughs]

—What are the themes you wanted to represent?

Yoshimune: This is shared in all âge titles such as Kimilta and KimiNozo. It's to accept the result of your decision and take responsibility.
Whether good or bad, it must be accepted. It's a theme where once you accept the result, you move towards the future.
Regarding titles I had directed, even though there's many variations, that fundamental part hasn't changed.
I just change the approach to it.
That's why even for 'Rasen Kairou', which was by OEM, the founding members of âge had the same ideas, so those kinds of themes found their way in.
Something along the lines of how by highlighting the importance of compassion, we can paradoxically get people to recognize its importance. [laughs] Anyway, I might have just wanted to cause a stir in the gal game format of the time. [laughs]
Things like having a one-sided love for three years, and not even holding hands even after going on a date. Or a convenient harem. [laughs]
The difficult and important part comes after you've agreed to be a couple, and becoming a couple isn't the goal. Even for taking entrance exams and looking for a job, getting in isn't the goal.

—What was the reason for putting a theme like that in your works?

Yoshimune: Although it might sound preachy, if you run away from the responsibility of including those

themes while crafting works, I feel that's not being involved with society, or well, you're just unneeded by society. [laughs] I myself am not a philosopher, theorist, or an ideologist, but since I'm sending something out into the media, I think that there's naturally a degree of responsibility.

That's what I don't want to make irresponsible stories where there's nothing to gain and nothing to learn.

I want to value changes in feelings of a character or whatever. It might sound repetitive but I can't help but feel that that is what I want to do.

I think that it's nice to have that kind of deep message every now and then. [laughs]

—That sounds like one of Yuuko's lecture. [laughs] Conversely, that means âge or any developer could get pretty far by jumping on that lecture bandwagon.

Yoshimune: That's right. Alt is kind of preachy. It's the polar opposite to catchy works that quickly change in pace.

Of course, if you can make a catchy game that sells well, that's perfectly fine. Frankly, I'm really jealous of talent that can produce such things, but I think that's impossible for me, since I still don't understand moe in the slightest. [laughs]

—Alt really is a thought-provoking piece.

Yoshimune: The BETA are a symbol of the real world society; the anonymous masses, society other than yourself.

Like the internet.

And the military is a symbol of organization and groups that you belong to, like the workplace, or your part time job. It might also be due to the composition of the game, where a youngster, with the essence of Heisei-era Japan, gets thrown in as the player's avatar into that organization.

In regards to the background and setting, about which much has been written, I have a responsibility towards the several discussions that arose amongst players, while I had them wait for three years. In response, I repeatedly wrote explanations in the scenario, so that if someone played Alt, they could understand everything without needing further research.

If you are a writer, listing out the settings and background of a work is definitely something to avoid, but I think I could pull it off because I wasn't a real writer.

At any rate, I had to explain. I think that explanations are allowed, in a sense, when dealing with the medium of games, since they also have effects, production, music, dialogue, and images.

As a result, adding my explanations may have had a positive effect instead.

Being able to understand the setting and world concept in a single package made it easier on Alt's players.

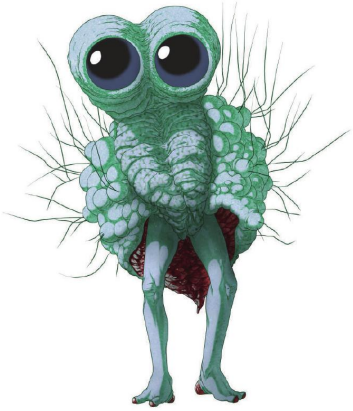
> The BETA are a symbol of the real world society.
>
> ——Koki Yoshimune



Grappler-class BETA



Soldier-class BETA



Laser-class BETA

Nanjo: The world setting of Alt, nearing the apocalypse, is interesting isn't it. We see things like how even though the world is on edge, TSF development continues, and new anti-BETA strategies are being studied.

—Did you take particular care in specific while constructing that world setting?

Yoshimune: I like works where you a feeling of the flow of technological advancements, so I paid attention to that.

It's just a small part, but because of that the detailed settings come alive, or rather, I thought that if I was going to create a sci-fi-esque piece, I had to go that far.

The Secret Behind the Creation of Mankind's Enemy—The BETA

—Now I'd like to ask you about how the concepts for BETA and hives were created. How did you originally conceive of the design of the BETA?

Yoshimune: First of all, the Destroyer class is based on the Gamilas Destroyer (★ 36), which appears in 'Space Battleship Yamato'. If you look at the design of the Destroyer's bow, I'm sure you'll see what I mean. [laughs]

The concept is that the patterns on the armored shell are scars from regenerated wounds, after being shot, so this makes each Destroyer's pattern unique, but overall, the patterns are actually based on the eyeball patterns of both larvae and fully grown hawk moths.

I've used quite a few insects as references.

Though because beetles tend to be the motif for alien creatures, I didn't want to rip them off too much, so I chose minor ones instead. [laughs]

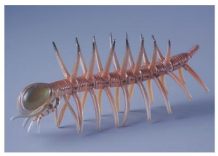
The heads of the Laser class and Target Alpha are taken from a kind of scary spider that looks like that. The huge body of Target Alpha is a magnified pistil of something.

The Soldier class is based on 'Genius Monster Noman', who appeared in 'Spectreman' (★37). To me, he was traumatizing. [laughs] The scary part about Spectreman is where the monsters eat people. [nervous laughter] Noman, as one of these monsters, eats people's brains, so he bites into their heads. [laughs]

—Was the Grappler class inspired by anything?

Yoshimune: The image of the Grappler class is based on the 1/2 Lady Corpse Zombie from the movie 'The Return of The Living Dead' (★ 38). Like they're only half a person.

When I was trying to design the BETA, I first looked at a lot of horror movies and medical books, and I analyzed what felt creepy. I understood that the grossest things were those that looked human, but were slightly different. If it was turned into a complete monster, bearing no resemblance to humans, it loses its creepiness, and becomes something along the



★ 42: Hallucigenia
An animal that lived in the ocean during the early to middle Paleozoic Cambrian period (approximately 545,000,000 years-530,000,000 years ago). Based on the fossils that were discovered, it is thought that they foraged the corpses of other species.

★ 43: F-105 Thunderchief
A fighter-bomber developed by US manufacturer Republic Aviation. It was a first in the US Air Force, since it could mount bombs inside of its airframe. It was often used for bombing missions, rather than as a fighter, and it could be considered a forerunner of multi-role combat aircraft.

★ 44: Fang of the Sun Dougram
A TV anime that aired in 1981. It explored the war and politics of Deloyer, a colony planet. It had a heavy military theme, and much of the machinery in this series bears close resemblance to real life tanks and helicopters.

Muv-Luv Alternative Interview Birth with Stories

★45: Minovsky Particle
A fictional particle that appeared in 'Mobile Suit Gundam'. It is a particle with a charge, and it absorbs and scatters radio and infrared rays. Because of this, things such as radars do not function when the particle is spread out over it, and this creates the setting for the necessity of visual flight combat between mobile suits.

★ 46: Close-coupled delta
A type of flight wing shape. Delta wings were given their name due to their triangular appearance, which resemble the Greek letter Δ. A close-coupled delta expands on the delta wing, and refers to a composite form with canard wings attached to the front of the craft, which aim to increase the lifting power of the airframe.

★ 47: FSX
The next-era support fighter of the Japanese Air Self-Defense Force. Initially planned to be independently developed by Japan, it became a collaborative development with America after several problems.



★ 48: F-16 Kai
Referring to the F-2, which was developed as the next era support fighter of the Air Self Defense Force. It was based on Lockheed Martin's F-16, and has been made with specifications unique to Japan, a nation surrounded by ocean on all sides. Namely, the airframe has been enlarged, and it was made to mount a maximum of four air-to-ship missiles.

★ 49: Zero Fighter
The Navy Type 0 Carrier Fighter, which was developed by Japan. It was active from the Second Sino-Japanese War to the Pacific War, and was the mainline fighter of the Imperial Japanese Navy. It was developed by Mitsubishi Heavy Industries and was feared by Allied Forces as the 'Zero Fighter' due to its long cruising distance and its high dogfighting ability.

★ 50: MOBILE SUIT IN ACTION!!
Pre-painted action figures released by Bandai. As the name suggests, these are figures of the machines which appeared in the Gundam series. They became popular because of their convenient size and price, and their high degree of articulation. A major characteristic of the lineup is that it also takes on many minor craft too.

lines of 'cool'. 'Alien'(★ 39) and 'Predator' are two such examples. The Bugs from Starship Troopers are also pretty cool looking.

Anyway, although they don't look flashy or new, I designed the BETA with a priority on instinctual disgust.

That's why there are some bits of the BETA that resemble humans, like the legs of the Laser class. [laughs]

—What's the origin behind the Laser class?

Yoshimune: For both the Laser and Heavy Laser classes, those slender legs are based on the enemy Arachnids from the anime version of Starship Troopers.

Arachnids also have slender, humanoid legs on their pudgy bodies. It would probably look cooler, design-wise, to give them bird legs, but giving them slender, human-like legs makes them look a little creepy, or at least they create this sense of discomfort.

I wonder if it's because they look like mascot costumes. [laughs] Those always creeped me out when I was in elementary school.

In the library, there was an illustration of an Ixtl, from The Voyage of the Space Beagle, and it was really excellent. Its design was a bright red body that looked just like a human's, but it had a head like a chameleon and growing from between its legs was a body of a child that didn't have arms.

To me, this was really scary, or, just creepy. And in Evangelion (★ 40), Lilith (★ 41) is creepy because of those things that look like the lower halves of humans growing from it, right? Because of those, I decided to give the Laser classes those slender legs.

—What about the Tank class?

Yoshimune: The Tank class is all about the hooves [laughs], though the Grappler class is too.

What I think the scariest, or perhaps most excellent part of the Devil's design, as he appears in the West, are the hooves.

Like the Grappler class, the head-like organ was made to resemble a fetus.

When designing them, I focused on that feeling of being close to human, but being different upon closer inspection. For example, their arms have leg joints, and there are four fingers on each.

Their glossy and smooth skin, their teeth [laughs], and their body fluid, with a metallic smell, like geranium. These are all really unpleasant, right?

—Is the Warrior class based on an elephant?

Yoshimune: No, it's not an elephant. In order to offset the cool factor of those swift-looking bird legs on the Warrior class, I made it have only one arm. I also borrowed from things such as an animal's fetus, or a rhinoceros beetle's larva, as ideas for its torso.



Heavy Laser-class BETA



Tank-class BETA

Much like the Tank class, the many mushroom-shaped eyes are from the Opabinia, which is a Burgess Monster.

The body segment structure was made to be the same as the Fort class on purpose, with the intent of instilling the sense that they were of the same species.

As a side note, the reference for the Fort class is the Hallucigenia (★ 42). Well, actually, they're exactly the same.

For the standing illustrations for the BETA, Nitro, who was in the same building as us at the time, assisted in things such as coloring and the original images, so I think we managed to have them bring out that kind of creepiness really well.

—Will new kinds of BETA emerge from here on?

Yoshimune: In Alt, it was hinted that among the pieces of flesh recovered from the lunar surface that there were some samples that didn't match any BETA that had existed up to that point. So, an unidentified strain might be discovered.

There might also be types of BETA existing on the Moon or Mars, and the satellites of Jupiter.

—How did you come up with hives, which are the nests of BETA?

Yoshimune: I was inspired by the B-movie 'Phase IV' and added a sequence where hives were constructed like the seeds of plants taking root.

This is also where I took the idea of 'phases', which describe the level of growth of a hive.

The inspiration for them launching 'something' is from 'Odyssey in Green', which is the 18th night of '2001 Nights'. The hive's form is from a memory of some artistic object that was outside, when Dentsu was still in East Ginza. [laughs]

—Was there anything difficult to deal with, in relation to BETA and hives?

Yoshimune: That would be their scientific names. [laughs] How believable the BETA are depends on whether or not they have credible names, so I made them while researching Latin.

Although they're full of holes to poke at, since it's said that they haven't been identified, yet they've been given scientific names. [laughs]

This is a bit off-topic, but it was difficult to make sure they didn't appear in Unlimited or Alt's prologue, based on the intended direction. [laughs]

Also, since mankind would lose too easily if the hive's growth speed was too fast, I spent a lot of time on adjustments to each phase.

I repeated thought experiments and verifications on them, like, "This hive can't be built here, because at Phase 3, the stab will extend to here."

The Origins of TSF Designs and Their Names

—The names of TSF are taken from existing fighters. Is that to create a sense that they have a connection with the real world?

Yoshimune: I added in the background to TSFs after I had thought about the concept of the Causality Quantum Theory, and the Causality Conductor.

Although it isn't convergent evolution, it's a concept that operates across space and time, whereby exchanges of causal information fill in the gap in this parallel world, where aircraft don't exist.

As fighters existed to some degree in this world, perhaps up to the F-105 Thunderchief (★43), there should have been an established system of naming for that world, which would end up being inherited by TSFs.

For example, in the case of the F-15, the manufacturers who designed it were said to be geniuses. They would have received causal information about the F-15 fighter without realizing it, and would give the TSF the name 'F-15 Eagle'. In a sense, they're like accurate fortune tellers. The fact that I like fighters also greatly influenced their naming.

A majority of robots in anime up to now have had a tank-like image, right? Even 'Fang of the Sun Dougram' (★44), which used attack helicopters as a motif, and 'Blue Comet SPT Layzner', which used planes as a motif—both ended up as tank-like for some reason.

The only one I can think of that took planes into their designs is the 'Valkyrie'.

There were so many tank-type robots that when I first saw the designs in Valkyrie, I honestly thought, "Studio Nue finally did it! There will probably never be another robot design this cool, and with such a believable transformation!"

That's why I wanted to give TSF designs and names that would evoke the image of an aircraft, and I also wanted their position as a weapon to be something that would fill the void of aircraft.

Also, setting out as many reasons as possible for robots to exist in the first place was a matter of etiquette; an obligation of old real robot anime. Much like the Minovsky particle (★45) from Gundam.

—The Laser-class BETA are the reason for a world in which aircraft can't fly right?

Yoshimune: In order to let TSFs exist, and to create a situation where humanity was on the verge of collapse, I needed to erase its advantages.

If air weapons and aircraft were OK, it would be possible to counter the BETA with missiles and bombardments. [laughs]

That's where the concept of 'all flying objects are intercepted by the Laser class' was born.

Once that happens, it's only natural to develop a new weapon to fill the hole left by the forces that were sealed way. TSFs, which carried the causal information of fighters, would eventually be developed. And then, since there's no original Japanese weapons in the modern world, you can be as creative as you want.

That's why I could take inspiration from the FSX (★47), which was a craft planned to be independently developed by Japan. It was designed to have close-coupled deltas (★46) and twin tails.

Not the F-16 Kai (★48). [laughs]

The Takemikazuchi is a further development of it, and is based on the F-3, which can be called the 'Modern Zero' (★ 49). That's why it's lightweight and specialized for dogfighting.

Even so, the first-generation craft were deliberately made to look like tanks, as a way of illustrating the stages of evolution in TSF operational concepts.

> The Takemikazu-chi is based on the F-3, which can be called the 'Modern Zero'.
>
> ——Koki Yoshimune

Things to Take Note of When Writing War Pieces

—I'd like to ask this too: What kinds of things do you take particular care with when writing war pieces?

Yoshimune: I was thinking that players would quit the game halfway from how large the scope of the game was.

That's why I wanted to make it something you wouldn't get bored of going through, by using the visuals as much as possible.

For things that couldn't be depicted with visuals alone, I'd have Takeru explain what's happening. Anyhow, I wanted to have something on the screen moving at all times, so the player couldn't take their eyes off it.

There's really a lot of information you can portray with just characters' expressions and voices. I began experimenting with that method of production since Kaseki no Uta. For example, behind the character speaking in the center, you can use the changes in expression in characters listening to them to catch lies in the speaker.

I pictured things like a miniature world in my head, and just thought about how the characters would move inside it.

—You're right that feelings of a character can be understood just with their expression and voice.

Yoshimune: Also, as a rule of thumb in manga, you're not meant to switch the positions of standing characters between panels.

The way the camera follows them is also the same, and if you change the positions of standing characters too frequently, it becomes difficult to grasp the information.

That's why the instructions I give are made based on the expectations of having made a 3D space in your head and knowing how the characters would move inside it.

Well, the instructions themselves for the directions were absurd and very vague. One such instruction I gave was 'high-mobility combat to a degree no one has seen before'. [laughs]

And then I piled on further instructions, in response to whatever resulted from deciphering those vague directions.

That's why I focused on the correctness of the information being transmitted with the visuals, rather than the realism of the tactics and combat.

—I've heard you conducted a step-by-step simulation for the movement of forces in Operation 21st.

Yoshimune: For Operation 21st, we drew an extra-large map of Sadogashima on vellum, and placed 'Mobile Suit In Action' figures (★50) on top of it, and did something like a tabletop exercise. [laughs]

It was less to do with our attention to detail, and more because we needed to share the progression of the entire operation with every staff member.

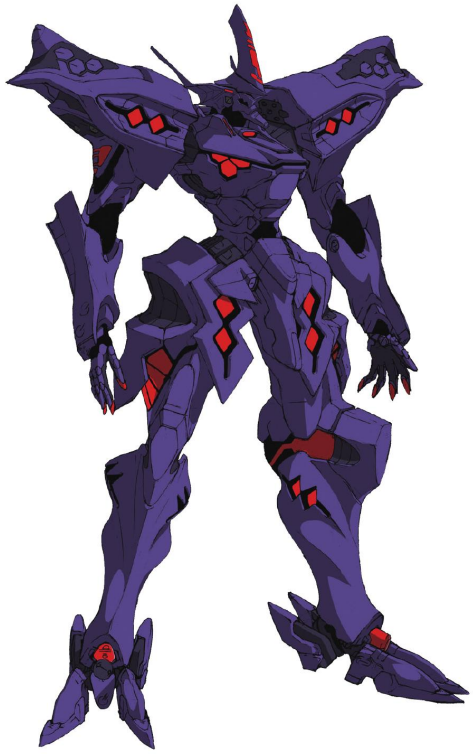
It wasn't an operation that could be thrown together haphazardly, and so we needed the entire staff to agree.

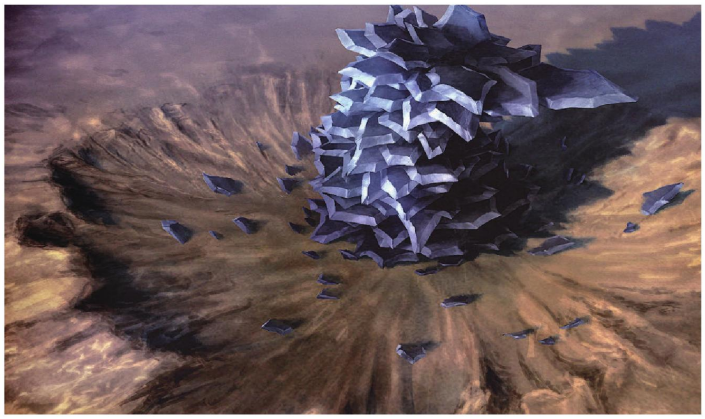
That's why we put lots of things into the game, like a map of operations. We showed the situation with pictures, so that players could understand the situation more easily.

It's quicker and easier to understand if you show a single image rather than have a wordy explanation. Also we did things like have other transmissions



Warrior-class BETA





cut into the dialogue to give the feeling of urgency and the feeling of being there on the scene.

Anyhow, you have to consider the characteristics of games as a medium and take the appropriate steps.

That's why we illustrated many battleships, tankers with rocket launchers, and support ships, in order to stick to our theory.

By properly depicting the situation and atmosphere leading to the start of the battle, no extra explanation would be needed afterwards.

You get the player to understand that they are going to move like this and do that, by properly explaining the procedure of the operation with a diagram during the briefing.

Even if they don't remember the fine details, having it explained once is completely different to having it not explained at all.

—What I think is amazing when I see Alt is the part that 'TSFs can't fight by themselves'. There's a proper system for supplies and maintenance, and there's also a social system that operates them.

Nanjo: They announce things like their remaining ammunition, which you won't normally hear in an anime. The concepts behind TSFs are such that they take their remaining ammunition into account.

We drew an extra-large map of Sadogashima on vellum, and did something like a tabletop exercise.

——Koki Yoshimune

Yoshimune: In fact, we've done things like having the number of rounds that had been shot shown in real time as data on the screen, and we've also accurately displayed the direction and orientation of TSFs moving on the screen.

That's why during atmospheric entry, it became an indecipherable, diagonal orientation. [laughs]

However, there was a person in the discussion thread who tried to measure the altitude of the atmospheric reentry by observing the altimeter declining during the orbital drop. Stuff like that's just for show!

But those who scrutinize the settings are all going down the right track. They guessed right for things such as resupplying hives with multilegged tanks.

Nanjo: There were even posts pointing out that there were at most only two battalion's worth of Takemikazuchis deployed.

We were like, "How did you know that!? Could it be there's been a leak!?" [laughs]

★ 51: Ochiai Nobuhiko
An international political journalist. He has also released several pieces of fiction grounded in topics such as the international situation and intelligence organizations. His unique history involves entering the oil business after studying in the US. His prominent works include 'The Truth in 2039' and 'The Two Dons'.

★ 52: The Truth in 2039
A novel by Ochiai Nobuhiko, which involves getting to the bottom of the assassination of American president John F. Kennedy, by going through many documents and with independent research. The '2039' in the name comes from the fact that all documents related to the incident will be disclosed on that year.

★ 53: Toei Manga Festival
An event where Toei releases several films aimed at children, at the same time. It is held in the spring, summer, and winter breaks, to coincide with the long breaks of children. Of the works shown, some only appear in the festival, such as animations where characters from different works compete, including 'Great Mazinger vs Getter Robo'.

Creating the Muv-Luv Alternative World

Part 3 Highlights of Alt's Story

Special Considerations Regarding International Relations

—Next, we'd like to ask you about global affairs.

Yoshimune: From the beginning, I had a bit of an interest in international politics.

I'm sure you'll laugh if you hear the roots of it, but things like Ochiai Nobuhiko's (★ 51) books I read in elementary school.

That's a kind of political fiction, right? Although it's labeled as non-fiction. Those kinds of things are pretty interesting, yeah.

Like 'The Truth in 2039' (★ 52). It's about how Nixon was behind the Kennedy assassination, and you can't help but say "Wow!" while reading it. [laughs]

I liked things that were fiction, yet still felt real.

—You like things that have a degree of realism?

> In the world of Alt, the UN's position is, in a sense, that of modern Japan.
>
> ——Koki Yoshimune

Yoshimune: More like thinking "Oh, that's amazing", when I see a work with breadth and reality.

Even as a child, during events like the Toei Manga Festival (★ 53), I was wondering about things such as how a 50m robot and a 25m robot could shake hands. [laughs]

That's also the reason why I prefer robots with more mechanical designs, rather than those with faces.

That's why it might have been inevitable that I would be drawn to Studio Nue's designs.

—There are many nations that appear in Alt. What did you pay attention to in particular when outlining their relations?

Yoshimune: It was not to create a one-sided evil. Usually, the US is made to be an incredible bad guy, right? I was actually bothered by that since it's weird to have such an obvious evil!

I've always held a thought like that.

It's like, even though there's works such as Gundam, which take a relative viewpoint of stances, you went off and made America the bad guy again? I think it's actually dangerous to think that there is a righteous party in the first place. That's why I didn't want to portray Walken from Alt in that way at all.

But in the first draft, written by Kichikujin Tamu, he had become a stereotypical incompetent and mean character. [laughs]

Walken was depicted as one of the senior officials of the US, and as a stereotypical bad guy that, when meeting his demise, throws a parting line like "Th-this can't be!!" before being killed. I was like, "That's not what I requested!"

And so, after numerous retakes, he said to me that he couldn't do it anymore, so in the end, I was left to write it all by myself. [laughs]

I think that it's just about right for Walken to have proper personal values and to look like a 'good guy'. And with that, I wanted to depict something like the madness of such a 'good guy' killing another person.

That's why I was extremely resistant to having the US as simply being bad guys.

—I remember there being scenes in Alt that defended the US too.



Yoshimune: If you were to ignore the good, and focus only on the bad of what the US did, it's no different to advocating for peace from a position of safety.

That's why I thought that Yuuko supporting the good of the US, while she was with the UN would leave a deep impression, especially after the relatively bad depiction of the US... But surprisingly, that wasn't the case. [nervous laugh]

It's true that the US was profiting, but it's a fact that thanks to that, mankind was better off. That's something that has repeated itself over the course of history, right?

Even in the real world, Japan has been tossed around by the US, but because of that, we're prosperous.

Unless you have the characters and story existing within the context of a background and international affairs, they don't come to life.

Representing the strength of the Takemikazuchi is also the same. First of all, the Raptor is depicted as being strong, yet the Takemikazuchi defeats it, and so becomes the stronger of the two.

But in order to depict the Raptor as strong in the first place, I had to show a chain where the Raptor pulverizes the Eagle and the Shiranui in the same way. This is because if you just suddenly show someone and say they're strong, no one will accept it.

If you show signs of the inner workings in the background, the players can naturally begin to imagine things like that.

The Sense of Identity of a Japanese Person

—What is Japan, in Alt's world?

Yoshimune: In the world of Alt, the UN's position is, in a sense, that of modern Japan.

I think that the essence of a typical Japanese person is closest to that.

Therefore, I had to make sure that the protagonist, Takeru, was part of the UN.

And there was the IJF, a symbol of the past, of Japan before the war. There, we have people who symbolize things like the virtues of former Japan.

Through Takeru's eyes, I needed to the depict the conflicts in values; the ideological gaps against those people.

When I did that, there were some sound arguments from the opposition, as expected.

But as a habit, Japanese people tend to resign themselves somewhat, and prioritize the opponent's standpoint, or put themselves too much into the other person's position. I think that's both a virtue and flaw of Japanese people.

Prioritizing the opponent's standpoint, being selfishly considerate to them, and not saying what you want to say can instead result in misunderstandings.

—There is a part of Japanese people where they are too considerate, even in situations where they have to assert their opinions.

Yoshimune: If the BETA are to be considered a symbol of the general public, I needed to show a realistic world, regions, and organizations that lie beyond them. I also needed to illustrate left-wing and right-wing ideas.

But the BETA and humans have an easily understandable hostility in their relationship, so if I was going to create the realistic world I wanted, I would definitely need a world background and conflict between nations.

For example, the background of a plan like Alternative 4 becoming established, despite being costly, and in a world riddled with financial and resource problems, or reasons for how humanity survives several decades, despite losing Eurasia to the BETA.

It's the responsibility of makers to create a believable framework and realism, in order to avoid being made fun of, over things like that.

If I prepared Alt with a nonchalant attitude, where everything exists just because I said so, I don't think the players would care.

That's why realism is an absolute must when creating a work like Muv-Luv.

—Does Extra also have this realism?

Yoshimune: Since Extra is a bonus you gain for the price of overcoming Alt, it's a special kind of peace. So the more carefree it is, the more the irony becomes apparent in that that peace only exists due to those who go unnoticed, despite actually having earned it.

★ 54: Sleeper
An intelligence agent or spy who conducts espionage or destructive terrorist activities. Irma Thesleff opened fire during the negotiation between Meiya and Captain Sagiri, and this broke down negotiations.

★ 55: Oscar
A character from The Rose of Versailles. She was the Commander of the Royal Guards and was responsible for the safety of Marie Antoinette. Later, although she becomes an ally of the people, she dies in a battle during the Storming of Bastille, which triggered the French Revolution. She was a beautiful woman dressed as a man, and gained overwhelming support from female fans.

★ 56: Professor Queenstein
A character who appeared in Space Warrior Baldios.
Her full name is Ella Queenstein. She is a scientist who excels in sub-space engineering and robotics. She developed Baldios.
She is also extremely capable and tends to follow logic more than emotions, but is definitely not cold-hearted, as she sympathized with Marin, the protagonist, who went through hardships.



There's a kind of shallowness to what people in a peaceful world advocate for, such as politics and war being dirty.

That's why there's a necessity to prepare a realism for the international affairs and nations; to have people understand that the peace we have today only exists because of the desperate fighting of those who supported the country.

In Unlimited, since Takeru was a trainee at the start, he couldn't reach a position where he could understand that fact, but in Alt, he finally reaches a point where he can.

That was a step I had to have in the series, no matter what.

In a short story by Asimov, aliens attack humans while the humans are embroiled in their own wars, amongst one another. Though the aliens thought they could secure an easy victory while the earthlings exhausted themselves, they ended up losing.

And then the aliens say something along the lines of how it was impossible to win against the humans, since they constantly fought wars.

The fighting instincts of humans are something that encourage their evolution and development.

I think the story was from a time when Asimov was writing short stories that included positive messages, wrapped around such irony.

I think that the ease of changing one's belief regarding whether conflict is good or bad is part of this message. I needed to use that in Alt's setting too.

Why Irma Barged in During the 12-5 Incident

—Come to think of it, during the coup section, Irma barged in at the moment where Meiya and Captain Sagiri's discussion was about to end peacefully. What was the background behind that?

Yoshimune: That was pretty much her simply being controlled by MKUltra. She had no choice but to take the job in exchange for the citizenship of her family.

As a sleeper agent, she was rigged to respond to a keyword (★ 54). MKUltra is a mind control technique the US was using, which utilized things like drugs. You undertake the imprinted order, irrespective of your own will.

After firing, Irma goes on to save Miki like nothing had happened. She had absolutely no awareness of what had happened.

In that case, you should run into the question of who actually said the activation keyword to Irma, under those conditions of such restricted communications.

In the main story, that isn't touched on at all, but I think it's made quite clear in the comic being serialized in Dengeki Daiou.

After all, there's the benefit of being able to depict the scene from a completely third party perspective.

> If the BETA are to be considered a symbol of the general public, I needed to show a realistic world, regions, and organizations, which lie beyond them.
> ——Koki Yoshimune

The Sequence of Events Leading to the Creation of Characters

—Next, I'd like to ask you about the characters. Could you please start with Meiya?

Yoshimune: Meiya is like a person who takes resolve to the limit, right? That's why she's in a position where she absolutely must die, in a theatrical sense.

If you let a person live, with that fate and that resolve, it'll probably only be taken as a right-wing message.

Regardless of the era, people who have mastered their resolve will butt in, disregarding their own wellbeing, and break through the situation, but meet their demise in exchange.

Therefore, Meiya was a character who absolutely had to die, and was carrying a fate where she had to embody a way of life and death that was appropriate for her name.

—I was thinking that maybe Alt was made with Meiya having the lead role.

Yoshimune: This is purely my personal preference, but I like women like Mitsuki and Meiya, who are in an unrequited #2 position.

It's probably because I like Oscar, the protagonist of the anime version of 'The Rose of Versailles' (★ 55). [laughs] I've liked resolute and cool female characters like that for a long time.

—What do you think of Sumika?

Yoshimune: As I've said before, Meiya is Oscar. And so for Sumika, she's the sun and main heroine, so I felt I had to make her a character everyone could like, in a cliché way.

Sumika's been given a really bright and clumsy personality, right. She says things like, "Apologize to slugs!". [laughs] Normally, you'd just say, "Apologize to me". [laughs]

Through Sumika who was like that, I wanted to show that people who are like the sun and appear to have no worries, do in fact have their own troubles and problems.

A message along the lines of there not being a single person who isn't going through troubles or experiencing hardships.

Heroines aren't just a convenient token; they have the same worries, pain, and darkness in their heart as the protagonist does.

I wanted to properly show that kind of thing.

—What about Professor Yuuko?

Yoshimune: I don't think that sinking with your ship is the right way of taking responsibility, so I thought that I needed a person like Yuuko who would live on and continue to see hell.

How do you make a character who wouldn't run away from that? That's why I made an extraordinary person like her.

One reference for her character was Professor Queenstein(★ 56) from 'Space Warrior Baldios'.

She too is another Oscar type. [laughs] Originally, Yuuko and Meiya were a single character. Their position too.

Michiru and Mitsuki originally had roles similar to that, but since they were heroines from different titles, I split them to act as a litmus test to measure the step by step growth of Takeru.

I gave the parts of a good person to Michiru and the others, and let Yuuko shoulder the dirty parts which move behind the scenes.

I tried to bring out that kind of coolness in Yuuko. I also did that litmus paper test with Takeru and his resolve, regarding him 'finishing things with his own hands.'

In the case of Michiru, he got to a level where he could send her out with a comms transmission, and so made a bit of progress.

In Mitsuki's case, he could send her by saying, "Leave it to me", and so made a bit more progress.

I wanted to make it so you could understand things like that in phases. I placed them there to show it in an easy to understand way.

In that way, even if we're told that how they died was repetitive, it was to make it easier to understand. If you don't show how he's in the same situation both times, it becomes difficult to understand if he's matured.

Another example of a scene where I wanted to show different versions of the same situation is in the ending of Unlimited. No matter what you choose, the outcome is the same, but the dialogue and graphics are slightly different.

That was to clearly show that the parallel world had branched off in that moment, like a really similar parallel world had branched off right there.

If we had released everything as a single title, as initially planned, I think it would have been easier to understand that part.

I'm often told that it's cutting corners, and that only the hair color changed, but it's the other way around. I wanted to make it the same story, but a different color rather than a different color but the same story.

No matter how you look at it, we made so many CGs for tanks and battleships so we wouldn't cut corners just for that [nervous laugh].

Why Did Takeru Go Back to the EX World?

—Since we're talking about the last part, Takeru heads back to the Extra world at the end of Alt. I think that it would have been expected that going back to the Extra world would have been more painful for Takeru, so why did he go back?

Yoshimune: There was a reason for Takeru going back there. I personally thought that for him to remain there without carrying any risk was something I absolutely couldn't allow.

That's why it was only natural for Takeru to go back to the Extra world, and that can be taken in a really ironic sense.

The reason why Takeru was able to be in that world was because Sumika had created the opportunity for him to be there, in exchange for a huge amount of the G-element. It isn't like he was there in the first place.

Therefore, Takeru himself carries no risk at all. That's why I initially intended to end Alt with Yuuko and Kasumi sending off Takeru, who was departing to the Extra world.

—That sounds like a really bittersweet ending...

Yoshimune: However, some people said that it wasn't good, so I ended up rewriting the final episode many times over. But I didn't want to let him simply go back to the carefree world so I wanted to change something.

Much like how Takeru still felt pain, even in the Extra world, on that other time he returned there during the story, I couldn't leave Takeru as he was.

That ending was what came about while considering how I should tackle these problems.

I wanted it so that Sumika's powers would erase Takeru's memories so he wouldn't suffer, and on top of that, I wanted Yuuhi and Kasumi there, trying their best, on equal terms.

Kasumi realizes Sumika's kindness, sheds tears, and thanks her. And what moved Sumika's heart the most were Meiya's dying words. Meiya had intended to take her feelings for Takeru to the grave, but in the end, she couldn't help but say it.

That's why Sumika, having picked up on Meiya's feelings, moves the Susano-O in that last scene. I think there won't be many people who realize this, but that scene is actually connected to the hot spring episode in Extra.

It's a recreation of the scene where Meiya and Sumika accept each other, and promise to give it their all, while Takeru is on the other side of the fence.

There, Takeru just watched the exchange between Sumika and Meiya from the side.

So in that sense, what really moved Sumika's heart were Meiya's feelings.

The Feeling of Wanting to Give Back to Those You're Indebted To

—Finally, I'd like to ask for a message to the players.

Yoshimune: The reason why Alt has so many preachy messages is because of my past seniors and superiors who raised me. It was all to do with their complaints, lectures, and even their drunken rants from when we were drinking and the fact that those all stuck with me, even to this day.

I inherited their knowledge on how to conduct business, and they inherited that knowledge from their own seniors, and so forth. So I couldn't let that end with me.

That's why I have the responsibility to hand down what I've inherited and continue to hand the baton to those hereafter. I think this is fundamental. Of course, I've made Takeru and members of the Valkyries say that too.

One thing that was fortunate was that the person who beat the 'way of a life of a man at his job' into me, while I still worked in the publishing industry, was the current chief editor of SUPER DASH Bunko.
When we got involved in a certain problem between our two companies, we both ended up having to contact one another, even though both of us had nothing to do with the problem. There, we ran into each other, and were like "Oh, it's been a while!" and solved the problem in five seconds.

Since then, they decided to publish our work, without a hitch.

It's very rare for an opportunity like that to arise, where I could directly return a favor, so I thought that I was very fortunate, and that it was really a valuable opportunity for me.

> What really moved Sumika's heart were Meiya feelings.
>
> ——Koki Yoshimune

Nanjo: You're right that Muv-Luv can leave a big impression on a salaryman. I used to be one, so I understand the viewpoints of those in a higher position, and the feelings of those below.

Yoshimune: It looks like Alt mostly reached those who are in jobs like middle management [laughs], and so the response from people in those kinds of positions was pretty big.

It was like what I had wanted to deliver to people with no experience in society ended up going to those kinds of middle management people. [laughs]

I've said this in many interviews before, but I'd like people to play Alt and KimiNozo one more time, after a few years, and for them to see how their feelings changed towards characters like Mitsuki, Haruka, and Takayuki.

I believe the difference in feelings is something caused by the passage of time. Even for Alt, how you feel about it should change as time passes.

I think that the moment a person can question why they were moved by it, they can truly shake off the inflated view they had of Alt.

And personally, I think that's fine.

Although this is part of the ego resulting from making things, I think it'd be fine if Alt, or works in general, were that kind of thing.

The world of Alt will keep expanding. It's an age where it's hard to live on, but let's both give it our all!

—Thank you.




Illustrated by 加藤直之
Naoyuki Katoh



Chapter 10

'Muv-Luv Alternative' Release Commemoration Game Magazines x âge Discussion

'Muv-Luv Alternative'

Release Commemoration Game Magazines x âge Discussion

The Path to Releasing 'Alternative'

The following is a translation of the discussion between game magazines and âge that had been originally transcribed in Volumes 12 & 14 of the âge Official Fanbook 'âge-ku no Hate'. From its planning stages, Muv-Luv Alternative walked a long road to its completion. This discussion was held in commemoration of its release, and several game magazine representatives gathered to share their heated opinions on the topic of 'The Path to Releasing Alternative'.

The original discussion was held on March 16th, 2006.

Saitou K (Hereafter 'K'): Today, in commemoration of the release of Alt, I would like to gather the 'living witnesses' [laughs] of Muv-Luv and Alternative—those who have followed the project since its initial presentation six years ago—for some questions. Everyone, I look forward to working you today.

Everyone: So do we.

K: Alright, first of all, what did you all think of the release of 'Alt' last month?

Suwa (★ 1): I was deeply moved, thinking that 'the day has finally come', but at that same time, I recalled the day I first heard of the project and... it really brought back memories. [laughs]

A Creature Named Yoshida (Hereafter 'Yoshida ★ 2): Was it around the fall of 2000 when I first got to talk to you about it?

Hatano (★ 3): No, we (TECH GIAN) had an article published in October, so it would have been around August or September, right? If I remember correctly, you told me about 'Kimi ga Nozomu Eien' (hereafter 'KimiNozo') and 'Muv-Luv' at the same time.

K: You're referring to 'that time' you supposedly talked about the story for a whole 5-6 hours straight, from the start of Muv-Luv to the last scene of Alternative?

Hatano: Yes, he covered everything from the characters' routes to the hidden background, and even some lines of dialogue. [laughs]

Okada (★ 4): At the time, 'Dengeki Hime' was still a bi-monthly magazine, and when I just went to inform him about releasing it more often, as a monthly magazine, he dragged out the conversation to six hours.... [laughs]

Yoshida: Sorry about that. [laughs]

Okada: Don't worry about it. To be honest, I personally really like 'Kaseki no Uta' (hereafter 'Kaseki') and I eventually forced my way into being in charge of correspondence with âge, so really, that six-hour ordeal turned out to be a lucky turn of events for me. [laughs]

Yoshida: I was overwhelmed by Okada's manic observations of Kaseki... And from that momentum, I ended up telling him on the spur of the moment. [laughs]

I had been considering a media mix and model exhibits for Muv-Luv from the beginning, so I had planned to formally present the idea to Media Works, which had hobby, comic, and even bishoujo magazines.

Suwa: We ended up having that formal presentation anyway, so I guess it adds up to just me hearing about the story for twelve hours. [laughs]
[Everyone laughs]

K: I'll ask since, at the time, I wasn't involved with âge, let alone the industry, but what was 'Pure Girl' like at the time?

Kawada (★ 5): I became responsible for writing about âge around spring of 2001, so that was already after you had spoken to Hime and TECH.

When I went to greet him and tell him that I was now in charge of writing about âge, he suddenly started telling me everything.

But it was a relatively lighter, five-hour ordeal. [laughs]

K: Our company was so desperate back then; I almost feel bad [laugh].

Yoshida: That hasn't changed. [laughs] When we formed âge, I decided that I would leave the industry if I didn't establish a name in three years. Since KimiNozo and Muv-Luv, which included Alt, were to be released exactly on the third year, I was especially desperate. In the end, they ended up being delayed, so I went over three years by a little bit...

K: I guess that's before I met âge for the first time on 'Chiyoren Channel↵'(★ 6).
What was the process of developing Muv-Luv like?

A Third-Year Title That Threw Away the Conventions of the Eroge Industry and Tried to Break Through From a New Angle

Yoshida: Within the first year and a half of forming âge, we rushed through with the games 'Kimi ga Ita Kisetsu', 'Kaseki', and the third party games, 'D' (★ 7) and 'Rasen Kairou' (★ 8). Now that I look back on it, those games hovered around 10,000 sales each on their initial release.

Unlike how it is these days, 10,000 copies back then wasn't a surprising amount, and it wasn't the kind of result we were after, so I decided that we'd go all out for the titles we would release in our third year.

Up until then, we had focused on the opinions of staff who were knowledgeable about Eroge, and we had conducted our PR and business activities based on the theories and implicit conventions of the industry. The first thing we did was reform that policy.

It was undeniable that I felt that the methods we had used up to then were 'off', given my experience in advertising and publishing. And it was true that our actions hadn't generated the results we wanted.

And so I persuaded everyone to leave everything regarding this final project to me.

K: You were changing the company's fundamental stance, so that must have led to quite a dispute, right?

Yoshida: No, in fact, it was approved surprisingly smoothly. [laughs]

I had always wondered why this industry never did things like media mixes and total package strategies, even though it was common sense among normal industries to do so. Once I presented the plan for that would include these for the next year and a half period, they accepted it pretty light-heartedly with an 'I guess we can' attitude. [laughs]

K: And that was what resulted in Kimi ga Nozomu Eien and Muv-Luv?

Suwa: We really had a unique presence at event venues back then, since we were doing things like having the voice cast cosplay and hand out free booklets, and by having joint promotions with singers.

Kawada: Come to think of it, I'm pretty sure that the first company to have a live show in a company booth at Comiket was Chiyoren, alongside âge.

Okada: Nowadays, that kind of thing happens all the time, but at the time it was so original, I was shocked.

Yoshida: Well, that was part of our desperation, I guess. This isn't something I should be saying in front of publishers, but at the time, we had cut all the advertising expenses, and poured all of that budget into producing free prints to distribute.
For magazine adverts, we were always aiming to be on the vacant pages (★ 9). [laughs]

[Everyone laughs]

Muv-Luv: The Project They Could Pour So Much Effort Into, Since it Was What They Had Always Wanted to Do

K: Going back to the original topic, did you hear that the simultaneous presentations of the two titles for several magazines ended with Muv-Luv becoming more popular?

Kawada: [Nervous laughter]

Hatano: Can we change the topic...? [laughs]

Yoshida: You could have asked anyone about KimiNozo at the time, and they all would have said it didn't feel that great.

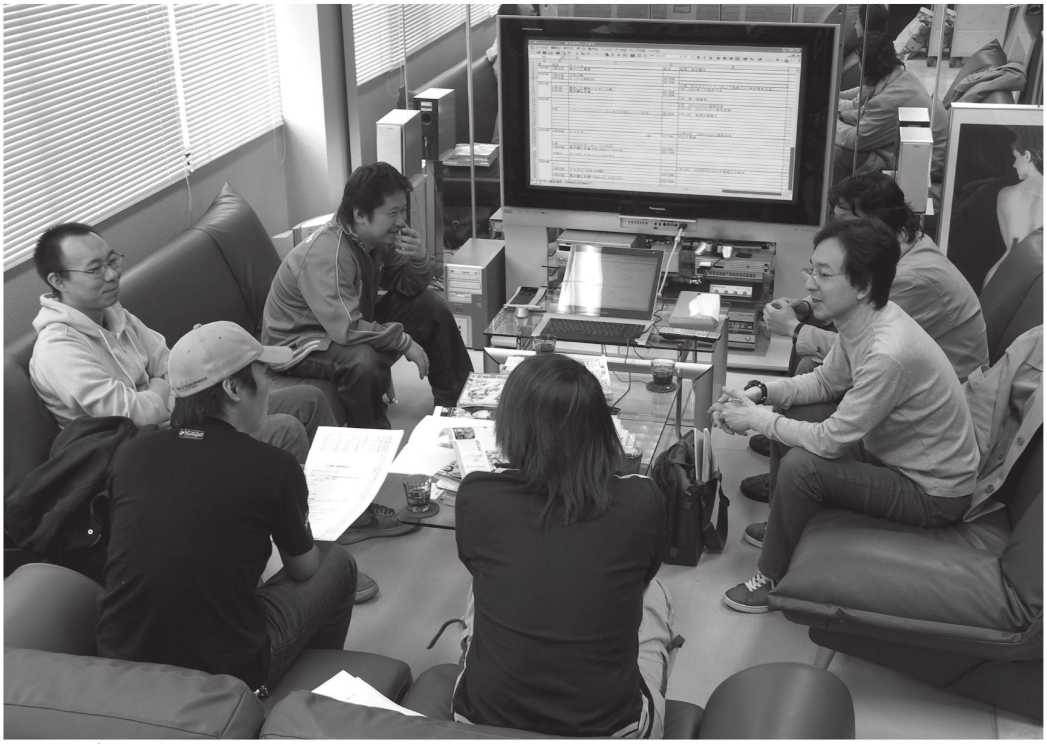
At the time, I went around desperately asking magazines to feature it, since it featured the same characters as Muv-Luv.

After seeing the proposal, even Tanumakichi (★ 10) reprimanded me, saying that complicated stories like this, with love triangles and multiple relationships don't sell. That left me quite blue. [laughs]

But I managed to become even more desperate with KimiNozo's PR, because of the uncertainty from things like that. [laughs]

Hatano: I can be honest about it now, since so much time has passed, but when I saw the long queue at that event, I can't deny that I was shocked that it had worked out. [laughs]

Nowadays, it seems that the lines for things that are distributed for free aren't related to the popularity of the title, but it's still an effective means for developers with a low profile.



Four representatives of the media relations that have, in a sense, supported âge along the long path to Alt's release, alongside 'A Creature Named Yoshida' and Saitou K.
The room was buzzing with excitement, talking about the deep topics that could only be brought up after the release.

Yoshida: You're right. However, free distribution is a double-edged sword, so we haven't done it since. Especially since I had decided from the get-go that we'd only do that for KimiNozo. [laughs]
But as a result, we managed to get even KimiNozo on the cover of 'Pure Girl' (★ 11), so it looks like it had a high appeal.

Kawada: Of course, we decided to have Muv-Luv on the cover before KimiNozo, though. [laughs]

[Everyone laughs]

Suwa: The issue of Pure Girl with KimiNozo on the cover came with the legendary 'entire first chapter demo', right?
I ended up buying that issue because I wanted that demo. [laughs] I still have it with me.

K: At the time, did Dengeki Hime also feel that Muv-Luv was the better choice of the two [laughs]?

Okada: Well, I guess if you hear the story all the way from Extra to even Alternative, you'd think that Muv-Luv sounded more interesting. [laughs]

Hatano: We've had a lot of developers come in for presentations, but I remember being really drawn in by Yoshida's presentation on 'Muv-Luv'.
I remember feeling really excited about it.

Yoshida: Is that so? I didn't intend to make KimiNozo look worse or anything [nervous laughter].

K: Well, I guess if you just talk about KimiNozo, it sounds pretty unremarkable. [laughs]

Yoshida: Muv-Luv was a project I had always wanted to do, so maybe I put in the extra effort because of that.
I had been told by the distributors and other developers that in the R-18 industry, robots, sci-fi, fantasy, and vampires don't sell. But after hearing that Nitro would try to make a game about vampires, with their 'Vjedogonia', I kind of felt like jumping on the bandwagon.
I was from the era where Tomino Yoshiyuki had a big impact, so I had a strong urge to one day reach the level of 'Zambot'. [laughs]

Muv-Luv Decorates Magazine Covers But Can Only Reveal Up To Extra

K: Ah, sort of like that car advertisement 'One Day I'd Like A Crown'?
And so, didn't anyone question whether Yoshida could actually pull it off, after hearing his story? I mean, it involved him working on two very large titles at the same time.

Kawada: I was pretty confident he'd be okay. I could feel the passion in him just from the presentation, and like Hatano said earlier, it wasn't just the plot, but everything was quite firmly established, from the settings to the dialogue.

Hatano: Come to think of it, you were making them with 5-6 people around the start. Now that I see the completed product of Alt, that seemed really reckless.
I'm amazed you were seriously thinking of making 'that' with so few people. [laughs]

Yoshida: Well, we ended up delaying it anyway, so it really was just reckless [nervous laugh].

K: Once KimiNozo was released, you all finally reached your long awaited [laughs] situation of being able to publish Muv-Luv in magazines, on a grand scale.
But even then, your restriction was that you could only show off Extra, which was in a school setting. [laughs] And since you all knew the entirety of Muv-Luv, including Alternative, I'm sure it was a tough ask to write up an article with those restrictions.

Hatano: Well, that's true. The problem was that I wanted to show a TSF in an article, but I couldn't reveal that Muv-Luv was anything more than a story in a school setting. So if I were to just write about them normally, I would have ended up with an article that made no sense. [laughs]

K: [Looking over old articles] What's interesting is that looking back on these now, you kept emphasizing Valgern-On. [laughs]
You also introduced the Takemikazuchi and Raptor with something like, "Are these robots new types of Valgern-On?"

★1: Hiroki Suwa. The ex-deputy editor of Dengeki Hime. As of 2006, he is working as the deputy editor of Dengeki Daiou, which is published by the same company, Ascii Media Works.

★2: âge representative. He has reached his current position by moving through advertising, magazines, and the consumer industry. When writing scenarios or novels, he uses the pen name Koki Yoshimune.

★3: Hatano Yuji. An editor at TECH GIAN. He was first involved with editing the magazine as a part-time job while being a student. Since then, he became a famous editor who has worked exclusively for TECH GIAN. He also goes by the pseudonym Macho Hatano.

★4: Okada Yukio. An editor for Dengeki Hime. His strong feelings towards âge are nothing to laugh about; he's a self-declared âge fan. His knowledge about âge's games might even surpass some staff members...

★5: Kawada Masahiro. Someone with a unique career path, moving from a role as an editor for Pure Girl to a staff member of the bishoujo game developer 'Kero Q'.

★6: Players started to give the name 'Chiyoda Rengou' ('Chiyoda Union'; shortened to 'Chiyoren') to the three rising brand names of the year 2000: Overflow, Nitro+, and âge. Whenever these three companies did something together, they would be called 'Chiyoren'. They co-sponsored a radio show from July to December 2002 called the 'Chiyoren Channel♪".
The first broadcast ended up as completely amateur banter between Kuribayashi Minami and Joy Max, so the director on the scene was hesitant for the show to go on air.

★7: A third-party game, where âge had been involved in its development. A psychological/suspense ADV revolving around bizarre sites on the internet.

★8: A third-party game announced by âge in 1999. It received high praise for its excellent scenario and graphics.

★9: A spare page in a publication, where an advertisement can be posted essentially for free. These come up when the magazine can no longer expect the initial estimated number of advertisements.

★10: Overflow representative. A multi-creator, who manages everything included artwork, scenarios, animation key frames, and production.

★11: This magazine's cover saw rapid improvements by focusing on finding better artists, and was the only monthly bishoujo magazine at the time that had special illustrations for its cover from across several titles. The fight for the cover was a fierce battle, so much so that PR departments of several developers were given strict orders to secure the cover of the magazine a month before the release of a game, no matter what.



Dengeki Hime Editor

Yukio Okada

Suwa: The Takemikazuchi was introduced as a stimulant. Even so, it was arranged into a story where it fights weird aliens in the 'Extra' world, in conjunction with things such as Dengeki Daiou's comics and Dengeki Hobby.

Yoshida: The same kind of story was used in a special radio drama on Chiyoren Channel♪.

K: Ah, now that I think about it, that was kind of similar to the last scene of Alternative.
Though Joy Max Robots didn't appear in Alt. [laughs]

[Everyone laughs]

Hatano: At the time, I really wanted to write about the truth of the Takemikazuchi and the shocking storyline, but I thought to myself that I didn't want to steal the enjoyment from the players, no matter what.
I was thinking those who had heard Yoshida's presentation would want players to experience the same shock as they had, having no prior knowledge.
That's probably why everyone tried their best to write an article in the style of what âge often does, with plenty of foreshadowing, even in the PR aspects, so that you'd get it once you looked back on it.

Okada: I just wanted to play the game for the first time as a normal player. If I had the choice, I'd rather not have heard his story. [laughs]

K: In the November 2002 issue of Dengeki Hime, there were certainly parts that would make you grin if you looked back on them now, such as the three Isumi sisters being mentioned (★12). But to a player who was reading it at the time, they probably wondered nothing more than why Kimi ga Ita Kisetsu was being mentioned after all this time. [laughs]
Maybe it left the impression that the game was so delayed that there was nothing new to write about. [nervous laugh]

Kawada: That's a problem for you too, right, K?
It's true that you probably treated them as an unrelated company until Muv-Luv, but you probably experienced the same agony over Alternative, right? I switched from an editor to a developer halfway through, I didn't get to experience those pains with you all though. [laughs]

K: To tell you the truth, it really was hard. [laughs]
I ended up going around apologizing as PR... Wait, we don't need to talk about me, let's get back to Alternative! I want to ask you about the articles on Alt after the release of Muv-Luv. Well, it doesn't seem right for me to be saying this [laughs], but as an editor, how did you handle things such as there being a lack of material you could reveal, and the release being delayed?

Hatano: There wasn't much of a problem with a lack of material to write about.
Well, this is from a little before that, but we started a serialization in TECH called 'Maito's Muv-Luv report' in February 2002... It was originally planned to go on for about three months. [laughs]

K: In the end, it became a pretty long-lived project.

Hatano: Muv-Luv was released a year after the serialization began. And it continued for another three years until the release of Alternative, with a slightly changed title, so really, its serialization lasted four years. [laughs]

Yoshida: Sorry...

Hatano: Well, this is true for serializations too, but there aren't any other R-18 titles that had been on as many magazine covers as Muv-Luv, are there? And that's outside of the Pure Girl one we mentioned earlier (★13).

Kawada: Even TECH had it on their cover twice.
I wasn't expecting TECH, of all places to have it on their cover at all. [laughs]

K: Since the time between its announcement and release was long, there have been quite a few.
After the release of Muv-Luv, the series finally began reaching players, though only as a setup, touching the surface of Alt, and then it took another three years after that.

Yoshida: But even so, I'm really thankful that magazines continued to publish it on their covers and in their articles.

Okada: Why was it that you ended up continuously working on Muv-Luv and Alternative for 5-6 years?

Muv-Luv and Alternative Announced as Two Separate Titles...

Yoshida: In the end, the main reason for that was certainly my incompetence, which forced me to do things like rewrite all of the scenarios myself.
As mentioned before, we were too ambitious and lost sight of the limits of what could be developed with our 5-6 initial members.
As the manager, I should have analyzed the development capacity of my company with more of a level head, and drawn a line between what we wanted to make, and what we could make. But after the unexpectedly good reception of KimiNozo, which I didn't think would sell much, I got too worked up thinking that Muv-Luv had to be better than what we had it as.

Hatano: You've often said in previous interviews that to âge, Muv-Luv and KimiNozo were projects that started simultaneously, but from the player's perspective, Muv-Luv is the sequel to KimiNozo, so it had to be higher quality in all aspects.

Yoshida: The amount of work required on the visual aspects of the game, mainly for things like direction and expression, all piled up, more so than the scenario itself.
Even so, there was a pressure from having our backs against the wall, and there were the unexpected successes in the media mix and PR, and finally, the companies and players taking the risk with us fostered that feeling that I couldn't release something half-hearted, no matter what. Together, these pulled me into a situation where I couldn't back down, and it was entirely my own fault.

Hatano: The expectations of the players were becoming extremely high too.

Yoshida: But in the end, as everyone is aware, we ended up having to release Muv-Luv and Alternative as two separate titles.
I thought that it would be better than going under, with nothing to release, so in the end it was decided due to financial reasons.
We poured all of the money from KimiNozo into Muv-Luv, so any further delays would have been completely impossible, from a financial standpoint.

Kawada: From the perspective of a fellow developer, it didn't seem viable to sell the contents of both Muv-Luv and Alternative in a single game for only 8,800 yen. [laughs]

K: At the time, you were criticized for announcing Alternative on the release day of Muv-Luv.
I wasn't involved then, so even though it wasn't my business, I can honestly say that I was thinking that there were better ways to go about it.
For example, you could have released Extra by itself as 'Muv-Luv', then announced Unlimited as 'Muv-Luv 2' and Alternative as 'Muv-Luv 3' and release them in that order.
I thought that you could have at least waited half a year or even a year before announcing Alternative.

Yoshida: Well, that certainly would have been a smarter way of going about it. In fact, the CEO of another developer gave me that same advice.
However, there were many things that ended up unfulfilled, due to my lack of ability, and since I was cornered until the announcement of Alt.
That's why I didn't want to think of anything unnecessary for Alt, and decided to be straightforward about it. Therefore, I held back on all aspects of PR except for radio events with sponsors.

Hatano: That's right. You didn't accept many of our interviews back then either. [laughs]

Yoshida: That was because no matter what I said, it would only have been an excuse, so I was thinking that the only option left to me was to let the game speak for itself.
And also, I could see that the difficulty had been raised another notch, when it was decided that Alternative would be split. From there, I determined that it would not be possible to complete Alt with the income from Muv-Luv alone, so I took out a loan for hundreds of millions of Yen from the bank.

Kawada: You were the joint guarantor of that, right, Yoshida? It's scary to borrow that much by yourself, isn't it.... [laughs]

Yoshida: I had my house as a security for the loan [laughs], but I couldn't stop the payments to the several companies involved, or the wages of staff, and we were in a situation where we couldn't release a separate, new title before Alt, based on the logical order of things.
Whether or not it was due to my lack of ability, it was the result of my decision, so I thought that I had to fulfill the bare minimum responsibilities I had as a manager. [laughs]

Suwa: What was the reason you took so much care in raising the quality of the game?

Yoshida: As I had said before, it was due to my belief that I had to pay for what I had done, so I didn't want to run away from it, no matter what.
After all, you can't be making a game that includes that kind of message, while doing something that goes against it. [laughs]

K: So I guess our company really was in a situation like Takeru in Alt. [laughs]

Yoshida: But there were also times where I thought I should finish the game, even if it meant lowering the quality, and this has been reflected in the final product. For example, the direct explanations of the setting and background info, which often appears in lectures, and when talking to Yuuko.
These direct text explanations are the stupidest things to do. It makes the tempo of the story worse, and it's one of the worst things you can do as a writer.
As an amateur writer, I'd personally prefer not to describe the history or have explanations about things such as armies and TSFs, as they aren't 100% required in the story.
However, I don't have the writing ability to incorporate them naturally into the flow of the narrative without increasing the length of the game.
I would have preferred prioritizing the beauty and flow of each sentence, but since there was a time gap after the release of Muv-Luv, I didn't think that the players would be satisfied, or understand the game without having explanations attached to most of the phenomena. That's why I chose to have the sentences with excessive explanations you see in the game.
Of course, I assumed there would be many people who had forgotten the contents of Muv-Luv, and that there would also be people who would play it over a long period of time, due to its length, so I added lots of recollections and repeated explanations.

Suwa: There were things like the political backgrounds, and even a story on the decline of the company that made the Susano-O. [laughs]

Hatano: But in the end, I think that was a positive. On the contrary, things like that conveyed the world's depth, and I think that it's easier to understand if it's focused like a lecture, as it was in the game, instead of being cleanly woven into a long story.
I'm not that interested in militaries and robots, but those lectures were very fun to read.

K: Come to think of it, Kuribayashi (★14) said the same thing too. Apparently, after playing Alt, she became interested in other robot and sci-fi works, so she started watching 'Vifam'. [laughs]
In this day and age, why Vifam!?

Yoshida: Well... I guess it's also a series that involves invasions. [laughs]

Kawada: I only vaguely remembered the contents of Muv-Luv while playing Alternative, but it was really good since it was easy to understand.
I guess you could say I had a high 'synchronization rate' with Takeru since we both had vague memories. [laughs]

Hatano: Could it be that the reason you released Alt three years after Muv-Luv was to do that?

Yoshida: Of course not! There is no way we would've gone that far [nervous laugh].

[Everyone erupts into laughter]

K: By the way, there were discussions over whether it was a good or bad idea to have KimiNozo and Kimilta appear in Alt, when it was first released. How did you feel about that?

Yoshida: Previously, I had given a similar kind of answer in a magazine interview about Muv-Luv, regarding the treatment of Akane, but with more foreshadowing. I wanted to properly illustrate that there was a background, a life, and a reason to fight even for the subcharacters who were killed off.
So to create a clear contrast between the two titles, KimiNozo and Muv-Luv, which illustrate the same theme with two different approaches, we made sure that Haruka would never die in KimiNozo, even from the planning stages of the game.

Hatano: You made the player think over and over that Haruka was in trouble, but in the end, someone else would die. [laughs]

K: I think that, to a fan, the life and death of a character is a big deal.
Although you had already planned these out from the start, didn't you have any hesitation in having the characters die as planned? After all, there was some time between KimiNozo and Muv-Luv's releases, with the characters having established a presence.

Yoshida: I was well aware that there would be a certain degree of backlash, if a character died in Alt.
But it wasn't a light theme I could conveniently depict while holding onto my self-preservation instincts, since I would always cop backlash if I killed off a character. In that sense, I was always prepared for the backlash, even from the beginning of the project.
I also think that there are some things that can only be conveyed to the player by doing that too.

Kawada: Although an original character from the game dying within their own game is easy to accept, it must be pretty tough from a fan's perspective, if they die in a different game.
Was there any kind of inspiration that led you to a message or theme you wanted to convey by going to such lengths?

Alternative Was Not Just an Eroge, But an R-18 Game in the Truest Sense

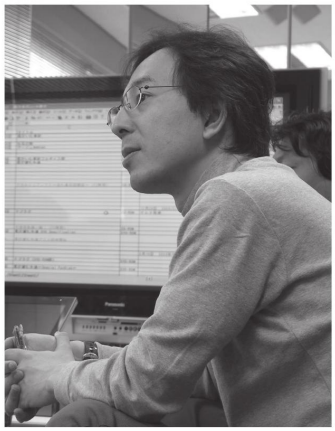
Yoshida: Although this happened almost ten years ago, my inspiration was a book I saw when I went for my first shrine visit of the year, to Yasukuni Shrine.

Kawada: It's starting to sound a bit like Alt [laugh].

Yoshida: Since I was a child, it's been in my local area, so my first shrine visit of the year was always to either Kanda Myojin or Yasukuni Shrine.
And when I tried to buy a good luck charm after my first visit, the store was really busy, so I couldn't get hold of the counter, uh, I mean a shrine maiden, who was selling them.
And while I was waiting for my turn, I looked through a few shelves, and saw a book called 'Eirei no Koto no Ha' (The Words of the Souls of the Heroes), which contained the wills of individuals such as Kamikaze Corps members, and those who died in battle.
I only just flipped through it, but it left a really strong impression.

K: That's the book you said you gave Kageyama (★15) during the meeting about 'Asu e no Houkou', right?

Yoshida: I was honestly overwhelmed by how the text felt kind, yet masculine and invigorating, having been written by those who stood on the front lines, whether they wanted to or not, and gave up their lives, thinking of their family and loved ones.
People who were ten or more years younger than I was when I read the book, writing down their thoughts to their loved ones, with sentences overflowing with an intelligence and refinement you wouldn't imagine from contemporary youth.



Dengeki Daiou Editor
Hiroki Suwa

★12: By that stage, it was decided that the side story of Alt, 'Inheritance', which focused on the Isumi sisters, would be published in Dengeki Hime.

★13: Including foreign publications, Muv-Luv has been on the cover of a magazine nine times over the November 2001-February 2003 period. Alt had been on seven covers between June 2004 and June 2006.

★14: While being a vital voice actress for âge works, such as Prie in Kaseki no Uta, Suzumiya Haruka in Kimi ga Nozomu Eien, and Yashiro Kasumi in Muv-Luv, she has also worked as a singer for numerous theme songs of several titles.

★15: An outstanding figure of the anime song world, whose fame needs no introduction. He is also the leader of JAM Project. He sung the opening song Asu e no Houkou for Alt, as well as the background song Tsubasa.

★16: Originally, Kashiwagi's last moments were that she would escape by herself to the mainland, by Michiru's orders. However, she detonates a supply vessel sent from the mainland, packed with S-11s, in order to neutralize the massive tsunami. There are remnants of this being foreshadowed in a conversation between Yuuko and Ozawa. She is then recognized as KIA by Yuuko.

I almost broke down into tears on the spot [laughs], so I quickly stopped reading, bought all the volumes, then went home.

K: So you're saying that became the inspiration for making Muv-Luv and Alt?

Yoshida: Not directly, but they certainly had a big influence on their foundations. I don't intend to glorify the history of Japan or war itself, but I don't intend to excessively criticize these either.

And it's not like I think that everything was better back then, compared to now. But what I do certainly feel is that the Japanese people of this generation, myself included, have lost something important.

I feel that there's something important that we let go of, by bundling it up with the words 'pre-war' and 'post-war'... Well, when I say things like this, I guess I do sound like those mini right-wingers that were popular a while back. [laughs]

I feel that, at first glance, Alt looks like a really right-wing story, but in fact, I intended it to preach the importance and value of peace, as well as the fact that it doesn't come for free, and on top of that, the importance of mutual understanding.

But you can't avoid including parts that look like they're right-wing when writing a story like that, and I wanted to avoid making the characters or content of the story shallow, as much as possible.

Hatano: I guess that the themes and expression make it seem like a game that is R-18 in the truest sense, rather than just a normal eroge.

Yoshida: But to tell you the truth, there were some cases where doing that resulted in repeated delays of the release.

During the initial stages of Alt's development, I said that we wouldn't announce a release date until we can see the release in our sights... Well, in the end, it was due to the lack of my ability.

K: Well... A lot's happened. [nervous laugh]

Okada: People on the internet defended you by saying you were being pressured from all directions too. [laughs]

Hatano: Well, it could be easy to write off as just being Yoshida's inadequacy, but don't you think that players would like to know the real story behind that?

Yoshida: Hmm, well I guess since I've kept everyone waiting for so long, I'll need to explain the proper reasons sooner or later.

Kawada: Is this something that is difficult for you to talk about?



Ex Colorful Pure Girl Editor

Masahiro Kawada

Yoshida: Well... okay, I'll talk about it with enough restraint that I won't cause anyone trouble at this stage. [laughs]

K: I'll stop you if things start looking bad. [laughs]

Yoshida: There were reasons I mentioned earlier for the split between Muv-Luv and Alternative, about the enormous amount of work on visuals, such as graphics, and waiting for the animations to be completed, and on top of all that, there was my incompetence, which caused all of that.

Furthermore, regarding Alt, there was another big factor—the influence of the social landscape.

I think it's easy to understand if you compare the timing of the delay's announcement to the incidents and disasters happening around the time.

If you work on a game for long enough, a lot can happen. Seriously. [laughs] It's like you get overtaken by reality.

Suwa: I see. Which parts of the game were influenced by the social landscape?

Yoshida: The 12-5 Incident, and Operation 21st, as well as the overall setting and world of the game.

Hatano: Could you be more specific?

Yoshida: In the original scenario, the intentions, thoughts, and schemes of the US and Imperial leadership during the 12-5 Incident was written in a more raw and harsh way. But if we were to do that, the game would be taken in such a way that it could be seen as extremely anti-American or supporting Al-Qaeda and praising terrorism. We decided to adjust it to what it is now, since we thought it would result in overreactions from the press, especially since it's an eroge.

> The only option left to me was to let the game speak for itself.
>
> —— A creature named Yoshida

Later, when we finished revising the scenario, just as we were in an optimistic state, having announced the release date, and only having to wait for artwork and animations, there was a large earthquake in Niigata. Straight after that, there was the tsunami disaster in Sumatra.

In the original scenario for Operation 21st, there was quite a bit of detail in scenes such as the area around the Sea of Japan, mainly in the Niigata region, being destroyed by the massive earthquake and tsunami caused by the G-Bomb's explosion, as well as scenes of the resulting refugees. In consideration of the victims of the real life disasters, we made big changes to the scene, starting with its composition (★16).

However, because Alt had a lot of foreshadowing, if we adjusted the structure of one part, it had a domino effect on other parts, so we ended up revising the entire scenario. [laughs]

And when we finally had the game's completion in sight, this time there was an uproar over anti-Japanese demonstrations, and things that hadn't been issues before, such as some specific expressions in Muv-Luv and the national policies of the empire quickly became off limits, and at that rate—

K: Um... I think it's best to leave it at that. [nervous laugh]

Hatano: That's probably for the best. [nervous laugh]

Yoshida: There's quite a bit more to talk about [nervous laugh], but maybe it's best to save it for later, since it'll cause problems for all kinds of people. In short, after going through changes like that, we reached the release day in February.

K: In the end, we redid the voice recording a whole three times over. The money we spent for the studio was practically enough to make a whole game [nervous laugh].

Kawada: That's no laughing matter. [laughs]

Yoshida: Well, I guess I'm a chicken to change the scenario like that. [laughs] It might not seem scary if you're not involved, but things like this come back to bite you if you underestimate them or if you don't care. Before, I was involved with a certain game developer, and during that time, the Aum subway Sarin incident happened.

One of the games that company had released had the word 'Armageddon' in its title, and that was enough to make the company liable to questioning from the police. I also had the opportunity to hear stories from people behind the scenes when I was working at a publishing company, so that scared me even more. [laughs]

I couldn't cause trouble for those involved, let alone my staff.

Anyway, there's no doubt that the fact that I couldn't predict international and domestic affairs, as well as incorrectly predicting the impact these would have on our company, even though we were developing a game with those kinds of themes, was entirely due to my incompetence.



TECH GIAN Editor

Yuji Hatano

Suwa: Well, other than the latter reasons [laughs], you probably would have had no problem explaining the delays caused by your consideration of the disasters right?

Yoshida: Well, I guess so, but there were probably people who could release a game anyway, and just brush off any controversies as coincidence. It's entirely my fault for thinking this, but using that as a reason under the circumstances of the time would have been too much of an excuse for me to use.

Whatever the reason, the result was that the game would be delayed, and it was me, entirely by myself, who decided that. And for the people who don't know the contents of Alt, it would sound like a lie.

Anyway, I intended to let the game speak for itself.

Okada: And so, when you reached the 24th of February, how complete was the game, or rather, how happy were you with the state of the game when you released it?

Yoshida: It probably was at about 60% of my initial ideal expectation. But there's no mistaking that it was a title that used up 100%, no, more than 100% of âge's development department over those few years.

I am really grateful to the staff members who continued to fight to the end, under the severe conditions.

I'm also grateful to the players who continued to wait for Alt, since we only managed to create it with all of you there.

K: Well, now that we've reached a neat conclusion [laughs], it looks like we're out of time for this interview.

Today, we talked about the path to releasing Alternative, but in the next interview, I'd like to hear everyone talk about their experiences with Alt.

Thank you for staying here for so long, even though you were all busy.

Everyone: Thank you.

Muv-Luv Alternative discussion with Game Magazine & âge

'Muv-Luv Alternative' Release Commemoration

Game Magazines x âge Part 2

Part 2 Topic:

From The Night Before Alt's Release to Finally Playing It

This is the second half of the discussion among the living witnesses of Alt's development, from several game magazines. They spoke about their thoughts and experiences from the rough period prior to the release, and from their time playing Alt after its release and when things had calmed down.

Saitou K (Hereafter 'K'): Last time, we talked about the period leading up to the game's completion. This time, I'd like to hear what everyone, including the recently arrived Ohmura (★1), has to say about the days around the release of Muv-Luv Alternative ('Alt' hereafter).

Everyone: I look forward to working with you.

"So this is it, even though you made us wait so long". If any one of you had said that..."

—— A creature named Yoshida

What was the truth behind the forced play-testing three months before release...?

K: Firstly, what did you all think when you first played Alt?

Okada: My first time was during the play-testing before the release. If I remember correctly, that was...

A creature named Yoshida (Hereafter 'Yoshida'): That was around the start of November. Although it was still a version in development.

Ohmura: To tell you the truth, I was feeling quite worried around that time.
The entire editorial department was also worrying about whether the game would really come out. [laughs]

Yoshida: I was certain that not only the players, but even the media and businesses wouldn't believe that it would. [laughs]
Well, it was only natural for them to think that way.
So, I decided to have people play-test a ROM that was two versions behind completion (★2), thinking that the best way to convince people would be to have them see it in action.

Ohmura: We knew that the reason why Alt's development was slowing wasn't due to technical issues. Rather, you wanted to raise the overall quality, including the scenario.
So even when the final stages of debugging are reached, the workload from there changes depending on how far you want to take it.
And since we also knew that you had rewritten the scenario a few times, to match the changes in the social landscape, I can't deny that I was worried that another incident might have occurred.

Okada: No, I had a kind of conviction that the game was nearing completion for a while.

Everyone: What!?

Okada: To spill the beans, that sense of conviction came when I had to have some new materials rushed in by Baka Ouji (★3), but unlike previous times, he managed to get them for me without a fuss.
I was certain that their quick response was proof that they were nearing completion.
So I honestly believed âge's release date announcement.

Hatano: Then it looks like there wasn't any need for âge to have Hime play-test the game. [laughs]

K: And then TECH would have a monopoly on that scoop. [laughs]

[Everyone laughs]

Kawada: From the perspective of a game developer, it's scary in a lot of ways to have people from outside your company, especially magazine editors, playing more than half of a game that is to be released in less than four months,
After all, the entirety of Alt is a spoiler. [laughs]

Yoshida: You're right, but all of you here today are people who had continued to write articles that avoided spoilers, so that it wouldn't steal the enjoyment from players, even though you knew of the storyline, from over six years ago.
And to top it off, there had not been a single leak in that time, so I didn't feel any kind of uncertainty.
I was thinking that editors' duties, or rather, their priority, would be on informing players of the progress of a game's development rather than spoiling it.

K: A progress report from a third party is much more persuasive than us saying, "It'll be released", a hundred times over. [laughs]

Yoshida: But I felt the fear that Kawada mentioned from something different. Once you continue making the same kind of thing for so long, you start becoming tainted (★4), and you can't tell anymore if it would be interesting or boring from a player's perspective, even when you play-test it by yourselves.
Although the ROM I had you all play had the scenario locked in, I felt that the directing was like a monkey on a typewriter, and that it was severely lacking, compared to the master version.
It's really scary showing something like that to magazine editors. [laughs]
I was really worried that you'd be dissatisfied, or that you wouldn't approve of the game. "So this is it, even though you made us wait so long". If any one of you had said that --

Suwa: —Then there could have been more delays [laughs]?

Yoshida: I think I would have gone too crazy to even consider another delay. [laughs]

[Everyone laughs]

Dengeki Hime and TECH GIAN's Issues Just Before Alt's Release

Okada: Although I was someone who believed in the release notification, being called to the play-test had the reverse effect of making me feel uneasy. [laughs]
I was never told to 'come in and play it' for either Kimi no Nozomu Eien (hereafter 'KimiNozo') or for Muv-Luv, so I was heading down to âge's office, with no idea of what would happen.

K: To be honest, we just wanted you to see it on a large screen and with optimal sound, to give even a slightly better impression. [laughs]

Yoshida: We bought a 50-inch TV (★5) for that reason alone.
It was bought online, at half price, with no warranty. [laughs]

Okada: But that's something you can't do unless you're sure that the game will be able to withstand being shown on a big screen.
Well, I ended up playing about eight hours on the first day, but I was surprised by how high quality the visuals were, and I even thought that it was complete, in respects to effects and direction.

Hatano: Especially with the parts around the Coup, they were so well made that we would have believed it if we were told it was the completed version.

K: I was actually thinking the same thing, but Yoshida kept saying things like, "make this, do that", so we didn't get an okay no matter how much we worked on it.
I kept thinking to myself that there really was such thing as a futile effort. [laughs]

Yoshida: Huh? I wasn't aware that today's topic was inside stories in development. [laughs]

[Everyone laughs]

Okada: And on the third day, I made it to the base defense scene, but to tell you the truth, I was really shocked since I didn't expect to be shown something that was so animated.
The total quality was staggering. [laughs]

Yoshida: I was really relieved to see you react like that, watching from the side.

Suwa: Because that was like receiving a seal of approval from a long-time fan. [laughs]

K: And then you wrote about us in your issue for the end of January. [laughs]

Okada: I put a little too much effort into that, and my readers scolded me that I spoiled too much! [laughs]

[Everyone laughs]

Yoshida: It was even worse before I checked over the article. Though it was a little hard to give feedback like that, since I had just asked him to play-test it and all. [laughs]

Hatano: We were working on a booklet (★ 6), but because we had to submit it within the year, I was visiting âge every weekend. We usually stayed up practically for the entire night on Saturdays.

K: It's a bit strange for me to say it, but frankly, I'm amazed that you decided on a booklet so early. Didn't you consider that another delay was possible?

Ohmura: I had been receiving reports of the contents played each week, and every week I'd ask if we could really release a booklet. Each time, Hatano would say, "No problem!", so I took my chances and gave it the green light. It was definitely a gamble though. [laughs]

But it had been three years since Muv-Luv was released and since the play-testing itself was rather suddenly organized, it felt like a strategic decision since we didn't think other companies would go to the extent of making a booklet on Alt. I thought that if we were going to, our only chance would be for the January 21st issue.

We had been waiting a whole three years, so if we got to the release date of alt without recording what we were seeing, our magazine would have lost all reason to exist. [laughs]

Was it work or free time? It was difficult to differentiate business and leisure.

K: Well, as a result, we were generally told by people writing about us that since we've done so much, we might as well release it right away. That gave me, working in PR, a sense of relief, but in the end, the first time you all got to see up to the end was once it was released as a product.

Did you feel a difference between playing it as part of your job, and playing it in your free time?

Okada: When play-testing, I'm completely in work mode, because there's deadlines for drafts, and so I go through the game at a really fast pace.

Yoshida: Okuda has an abnormally fast reading speed. [laughs]

I even asked whether he was actually reading it, because he kept clicking to turn the page while play-testing. [laughs]

Okada: Normally, if I were to enjoy a game I like in my free time, I play at an extremely slow pace once I get near the ending, because I don't want my enjoyment to end. But when I played Alt, I ended up rushing to the end, because I wanted to find out what happens next. [laughs]

K: So in the end, it was no different to work. [laughs] How was it for you, Suwa?

Suwa: I'm the same as Okada. I ended up clearing Alt on release day, when I bought it for myself. [laughs] But I was shocked to see my own name in the end credits.

My name was also published in Muv-Luv but it had been three years, so I had forgotten about that, and I was really glad to see my name in Alt.

Ohmura: I was also surprised to see my name in the staff roll of 'Muv-Luv'; a kind of 'I'm on it!'. [laughs] I was so surprised I called up Kami and showed him. [laughs]

K: So when did you end up playing it, Ohmura?

Ohmura: About a week before the release, I went to eat out with Yoshida for a meeting, and out of the blue, he gave me the master version.

Yoshida: Ah, if I remember correctly, that was when we had the meeting on the way home from Wonder Festival.

Ohmura: He was really light hearted about it, like, "Want to give it a go?" Not what I'd expect someone to say when handing over the master copy! [laughs]

I refused right away, since I didn't want to go home with such a big responsibility. [laughs] And the next day, I had him bring it to our editing department. It takes quite a while to install, right?

While that was happening, the situation kind of hit me, and I got goosebumps, or rather, I felt something deeply moving.

Yoshida: Was it something like your long road of suffering... Maito's (★ 7) long-lasting serialization finally coming to an end? [laughs]

Ohmura: No it wasn't! It was that "Alt's finally starting"! [laughs] Afterwards, I ended up not being able to play until after its release since I was quite busy. [laughs]

I decided to play the game in 3-4 hour chunks on weekends, but it was tough to keep that pace, seeing as I was the chief editor.

Suwa: Was it a problem with something like your editorial policy?

Ohmura: In the editorial department, you never know what you might end up overhearing. Hatano, for one, finished the game a long time ago, and the others had cleared it since its release.

K: —Spoilers are the problem!? That's completely unrelated to your job!

[Everyone laughs]

Ohmura: It's terrible, really. Even though I sent an order not to talk about Alt, people came right up to me and tried to talk about it.

They'd ask me where I was up to, and when I answered, they'd smile wryly and say something like, "Ahh, there... Hmm...". That made me so mad. [laughs]

And to top it off, I had to proofread articles on Alt, so it was unbearable!

[Everyone laughs]

Okada: Well, that's your job. [laughs]

Ohmura: You're right. I can't not look at the articles, so in a mad rush, I ended up playing up to the parts written in them. [laughs]

Kawada: It's just too sad to find out about the story of a game you want to play by proofreading. [laughs]



Alongside the members from the first half of the interview, TECH GIAN's chief editor, Ohmura, joined for the second half, as the Alt discussion gained more and more momentum.

Everyone's Thoughts About 'That' Scene

Ohmura: And the strongest contender for the scene you didn't want spoiled was Marimo's death. That death was a scandal immediately after release, so everyone found out about it, no matter what.
It was tragic to be forced to find out about it. I wanted to be hit by that scene as a clean slate. [laughs]

Hatano: I guess since you haven't experienced that previously mentioned six-hour presentation (★8), Ohmura.

Ohmura: Initially, I was going to play 3-4 hours, but after the scene with Marimo, I just couldn't stop playing, and before I realized it, six hours had passed.

K: We get told that often by our players too. Alt is difficult to pause.

Hatano: Sometimes when you start from save data, because you want to replay a certain scene, you end up continuing, even when the scene's over. [laughs]

Ohmura: It was really painful to watch Takeru after the scene with Marimo. It was like repeatedly been lifted up and slammed down.
Once you feel empathy for him, and you start thinking that it's tough being alive, you can't stop. [laughs]

K: What did everyone else think of that scene?

Okada: I had heard about it before I played it, but I didn't like it. [laughs]
Saying that I didn't like it might create a misunderstanding, but I had grown to like Marimo quite a bit, so to tell you the truth, it was a tough scene to go through. [laughs]

Suwa: We might find it easy to empathize with Walken or Marimo, because of our age. It's like something to aspire to; managers should be like that.
And at the same time, the sorrows of being a middle manager permeates into the best of our years. [laughs]

Yoshida: In most of the manga and movies my generation would have seen, the 'reliable veteran sergeant' usually dies and becomes the nutrients to fuel the protagonist's growth.
Therefore, in a sense, Marimo's death was a staple and a cliché.

Ohmura: I understand, but I didn't think that Marimo would die there.
I had gone and predicted on my own that she would die in combat, and in the real world, she ended up being killed by a human, right? That was a real shock...

Suwa: Yeah, to be thrown into a meat mincer head first...

Kawada: The developments on the lead up to the Marimo incident, and those after it, are quite fast paced, right.
I thought things would progress more slowly, but your head gets filled to the brim, because shocking events get pushed onto you in rapid succession.

Yoshida: Around that section, things were reaching a climax, so to avoid making it a slump, I tried to create a sense of speed.
The long talk from Yuuko after that (★9) is key in the latter half of the game, so I also did that to get the users to take their time in reading it.

Ohmura: Come to think of it, quite a while ago, you were saying that the scene with Marimo was raised as a problem in the planning stages, right?
What was the reason you put so much attention into that expression, which used not only text, but had an illustration too?

Yoshida: We already talked about a similar thing, before you joined us, Ohmura. [laughs]

Ohmura: Oh, is that so? Then I'll ask you to talk about it from a different angle to before. [laughs]

Yoshida: It had become a big problem, even during the planning stages, because giving a cruel and merciless death to a named character with their own ending is essentially attacking fans, so it should be avoided. I'm sure there's plenty of opinions about that scene, but we determined that the expression, including that picture, was necessary in order to illustrate the significance of Takeru returning to the battlefield by his own volition, and resolving himself to protect the people of that cruel world, and so that players viewing the world from Takeru's perspective would understand that.
I did understand the impact of a cruel death of a character on the players, but because it is a war, not all deaths can be made beautiful, and I had the responsibility to show that, so I thought to myself that I could not make a priority out of protecting myself from players' backlash.
There was also the fact that I wanted to illustrate one of the possible answers to a problem, like how a person can take responsibility for the irreversible fact that someone they are indebted to die a cruel death because of them.

Hatano: It looks like you're approaching the same theme of KimiNozo from a different angle.

K: But from about a week after release, we began receiving lots of opinions and thoughts from players, saying things such as, "thanks to that scene, I could empathize with Takeru 200%", "I've never hated an enemy so much in a fictional work before", and "because I overcame that scene, I could really understand the value of friends and peace, from the bottom of my heart".
I was really grateful, thinking that it must have gotten through to them.

Ohmura: Anyway, Alt can act as a kind of 'how-to' book for business, or as an introduction into a way of thinking.
The more of an adult someone is, or rather, the more they're a working member of society with management experience, the more they'll get out of Alt, and the more they'll get hooked by it.
To tell you the truth though, I would really want people who aren't like that to experience Alt more. [laughs]

Kawada: But in the end, Alt is that kind of thing.
The Muv-Luv series is labeled as a 'fairy tale of love and courage', but fairy tales are cautionary tales about what to avoid doing, if you don't want to be rejected from grown-up society, right?
Although recently, I've heard there's a lot of them that end in 'happily ever after', since people just don't want cruel fairytales anymore. [laughs]

K: Come to think of it, of the opinions we received, there were some along the lines that it was wrong for it not to have a happy ending, seeing as it's a fairytale.

Ohmura: It's funny to use such a childish term as 'fairytale'. [laughs]

Yoshida: But I intend to internalize the fact that such interpretations are possible, and the fact that there is a misalignment in our senses and the players' in regards to one of Alt's main messages—mutual understanding. When people change their position, their perspective, and hence what they see, also change.
This applies to KimiNozo too, but it would make me really glad if someone replayed Alt once more after several years to see how their experience of it has changed.

Character Cameos and the Good and Bad of 'Death'

K: At one stage, it became a popular topic to talk about how the heroines of âge titles set in Hiiragi City would be making an appearance in Alt. What did everyone think about that?
We actually received some opinions along the lines of 'they want to raise the sales of Alt by using preexisting characters'. [laughs]

Yoshida: Well of course we'd get told that, because we had delayed it by so much, without revealing much of its content.
We brought that upon ourselves. [laughs]

Okada: But I was thinking that there would be many people who would be excited about that.
Personally, I was quite happy about it.

Yoshida: You knew about that from over six years ago, didn't you, Okada? [laughs]

★1: Ohmura Masaki. The chief editor for TECH GIAN. An ace editor, who built up the current position of the magazine, which is now highly popular. Apparently, he talks a lot about health and food. His alias is 'Hema Ohmura'.

★2: An old version that was two versions behind the newest version at the time. In it, 20% of the voices were missing (due to waiting on effects), only 70% of the dummy content had been cleared, and the production was only at the first stage.

★3: The key animator of âge. He took on the original illustrations for Kimilta and KimiNozo. He is almost always living at his workplace, and he is only able to return home for several weeks in a year. He also happens to be a director.

★4: A state where you lose objectivity, after seeing the same content over and over. In particular, it becomes difficult to remove errors because your brain automatically fixes the sentences as they're read.

★5: Now it is being used in conferences, meetings, and presentations as the PC monitor in the conference room.

★6: Referring to the 'Muv-Luv Alternative: STARTING OPERATON FILE', which came with the March issue of TECH GIAN, released on the 21st February, 2006, just before the release of Alt.

★7: The report article by the official Muv-Luv cosplayer, Maito, which was serialized in TECH GIAN. It was planned to continue for three months, but following the delay in Alt's release, it ended up being a long serialization of approximately four years.

★8: At the beginning of Autumn 2000, A creature named Yoshida held a six-hour presentation covering the beginning of KimiNozo and Muv-Luv all the way to the end of Alt, to several media representatives covering the game.

★9: The Causality Conductor hypothesis. An explanation Takeru's situation. Yuuko talks about it in the car on the way to the reactor of Hakuryou Base.



TECH GIAN Editor

Masaaki Ohmura

Okada: Normally, you wouldn't think that a story you heard so long ago would appear completely unchanged. [laughs]
I was thinking you would have probably changed it in some places, and at the time, not even KimiNozo had been released, so I didn't think much of more of it than being a gimmick. But when the assets arrived, I had already finished playing KimiNozo, so I was really happy, since I had grown attached to the characters and all.

K: But when I suggested to you that we announce it in Dengeki Hime before the game's release, you looked worried, Okada.

Okada: That was because, as someone who had experienced Alt, I wanted players to play it firsthand and experience the surprise for themselves. [laughs]

Kawada: As expected from a self-proclaimed âge fan... Putting your own ideals before your work. [laughs]

Yoshida: On the other hand, Hatano was the complete opposite. You were really active in wanting to announce it.

Hatano: No, to tell you the truth, I had a real inner conflict in me about doing just that! [laughs]

K: You're totally lying! [laughs]

Ohmura: As expected of Hatano, you're a man of merit. [laughs] ... Well, to be serious, I had a weird feeling when I first introduced it in a magazine.
It seemed like the article, alongside the fact that we only provided the information in glimpses, were fueling all sorts of speculation among the readers (★ 10).
For example, "Is that person an enemy of Takeru and his friends, or are they a friend but also a rival?"

K: There's also characters from Kimi ga Ita Kisetsu (hereafter 'Kimilta') who make an appearance. And almost all of them die. [nervous laugh]
It got so bad that people wanted us to create a fan disk of Alt where no one dies.

Ohmura: I can understand that feeling. [laughs] There is no other story in the world where so many heroines die, and the protagonist breaks down so many times. The normal theory is that it only happens once.

Yoshida: You might be right that once is enough, in a theatrical sense.

> There is no other story in the world where the protagonist breaks down so many times.
>
> ——Masaaki Ohmura

But, if I look back on my own life, I've repeated the process of falling and then crawling back up so many times, I feel it's a bit too light for Alt to have only one setback.
And you'd expect that after that failure, you would grow, and build up experience, but even though the situations and people involved change, the fundamental reason for failure tends to be largely the same in the end. [laughs]
It's like fighting a Badboon then, and fighting a Big Badboon now, but you get wiped out both times anyway. [laughs]

Kimura: If we're talking Dragon Quest, I always felt that the Badboon was the stronger of the two... Or at least that's my impression.

Yoshida: I completely agree with you. [laughs]
In short, when you're young with not much experience, the failure itself leaves a bigger impression...

K: How did we get to Dragon Quest? [laughs]
Though you're right that Badboons give off a stronger impression than a Big Badboon! [laughs]

[Everyone laughs]

Yoshida: Well, back to the main topic, I think that life is a repetition of those kinds of ups and downs.
I'm sure that you could see a superhuman image of an ideal hero in works from other companies, which would be far cooler and more refined than we could make.

Kawada: Well, I feel like Takeru has a superhuman's spiritual strength. [laughs]
Also, Takayuki as well. [laughs]

Ohmura: Come to think of it you often see those kinds of protagonists in âge works, especially those with planning or scenario by Yoshida. Is there a reason for that?

Yoshida: Let's see. It'll be a story about an extremely individual motive behind making games, but if we take what we talked about earlier, at the Yasukuni Shrine (★ 11) as a significant factor leading to the development of Alt...

Ohmura: What did you talk about earlier?

[They tell Ohmura the story about Yoshida's first visit of the year to Yasukuni Shrine.]

The Message Imbued in the Protagonist, Takeru, and the Other Characters

Yoshida: —And so, regarding the ideal image of a protagonist, there are times where once you mature a little, or you end up in the shoes of someone who told you off a lot in the past, you finally understand what their lecturing was about, right? And when you finally think that you had come that far, there are cases where you just can't ever meet that person again.
That's happened quite often to me, you know.
For example, my homeroom teacher in middle school, and my father, who died over twenty years ago.
Over the past ten or so years, I've tended to think about what I would talk to my father about, if he was alive now. Perhaps because I'm getting old.
I believe that the words those people leave behind are hurdles for the people left behind.
'The responsibility to pass ideas down to the next generation' might be a bit exaggerated, but I wanted Takeru in particular to be a protagonist with whom you could feel something along those lines.
So I wanted him to be a boy who is supported and valued by a lot of people. Just a regular boy who grows with everyone's support.
Of course, since the game has been released now, I'll entrust the evaluation of Takeru as a protagonist to the players.

Ohmura: I see. So that's why you want people to replay Alt after a few years, or even a few decades.

Suwa: So what kind of people in the real world do you see fitting into the role of the characters who have entrusted their feelings to Takeru, a regular protagonist?

Yoshida: Compared to Marimo, who was like a teacher, Michiru, was more like a boss at a workplace.
Marimo sees Takeru as someone absolutely under her guardianship, and Michiru sees him as an equal, deep down.
Mitsuki is like a senior in the same department, and is like a brotherly figure who even teaches some bad things.

Hatano: Personally, Michiru's death was a big loss for me. I felt like her last transmission with Takeru was being said directly to me, and it was really moving.

Kawada: Her last words to each unit member were also quite touching.

Okada: You can tell someone's personality by which of those lines impacts them the most.

Ohmura: To me, it was the words to Takeru more than to the members of the unit.
For Hatano, I bet it was the lines directed at Mikoto. [laughs]

K: Ah... Since Hatano takes it super easy, and doesn't listen to what people say. [laughs]

[Everyone laughs]

Okada: At that scene, I admired Michiru's observational skills as a superior, like she had been watching her subordinates to that extent, in that short time period.

K: No, no, Okuda [laughs], she's a character in a story. Isn't that a little too convenient? [laughs]

Okada: Well, that's true, but at the time, I was really into it, so I could think like that. [laughs]
Well, I was thinking whether I would be able to give such accurate advice to my subordinates, were I in that hopeless situation.
I'm not sure I'd call it admirable, or brave, or... In the last moments of your life, could you say tough things to people, with the resolve to end up being hated by them?
I couldn't. [laughs]

Yoshida: The fact that you're still somewhat objective with your viewpoint, despite having felt empathy, really shows who you are Okada.
By the way, the reason Michiru knows so much about the new recruits like Takeru is not only because of her perfectionist personality, but because of dossiers and other personal information related to them, sent by Marimo.

Okada: I see. Well, since Michiru was the first character I cleared the route for in Kimilta, I can't help but see her in a biased light. [laughs]

Ohmura: Kimilta, huh. That brings back memories.

Okada: Strangely enough, maybe that's why I didn't feel it was odd for characters like Michiru and Mitsuki to make an appearance.
They were graduates from Hakuryou, so it's natural for them to be Surface Pilots in that world, which makes it understandable from a story perspective, and on top of that, I was really happy, taking it as fanservice, for those who had been dedicated to âge's games for a long time.

Ohmura: Well, if you've played Kimilta and KimiNozo, you can see the core of characters like Michiru, who are only sub characters in Alt, and it allows you see the same story from different angles.
I think the weight of their words and the feelings you receive from them also change.

K: What about characters from different titles, other than Michiru.

Okada: The last of Mitsuki left an impression. When you're playing the base defense section, you start feeling more and more down because the base is being attacked and is starting to crumble, and there were many battles of attrition in enclosed spaces, and I guess the scene was at night as well.
Her last moments on top of all that was just...
Later, Suwa and I got really depressed, and we both said, "Mitsuki's really dead, isn't she..." [laughs]

Hatano: It's not about a character, but when the Susano-O Mk. IV was knocked over when Hangar 90 was attacked, I almost cried by how overwhelming the sense of despair was. [laughs]

Ohmura: When Haruka died, I felt really down.
Like Okuda, I already felt like the situation leading up to it was depressing.
And to top it off, to have her die like that. Compared to the cast up to then, it felt like her death was really meaningless, so I couldn't easily sort out my feelings.

Kawada: No, no, she was displaying an extreme level of 00 Unit characteristics (★12), by avoiding Yuuko's death. She made the greatest contribution of all the Valkyries. [laughs]

Okada: The point that her death was modest, or rather, that it looked plain at first sight, is like her. [laughs]

Yoshida: Takeru, having experienced both Marimo and Michiru's deaths, accepted the situation of Haruka and Mitsuki's deaths without falling into as much despair.
But that was just something on the surface, which took a lot of effort to cover up. After he finished the transmission with Mitsuki and returned home, he just shouted alone about how powerless he was.
That was a scene (★13) where you could tell that Takeru had finally grown to be able to endure without it showing on his face, to be considerate of others in the truest sense. That's why I'm quite fond of the scene.

Suwa: That really was a scene where feelings were represented.
Mitsuki—who didn't waver when faced with the deaths of Marimo, Michiru, and Haruka—one of the things she left for Takeru finally bore fruit.
Mitsuki was aware of Takeru's feigned endurance, and then she cheerfully gave him a "well done". That really hits home...

Kawada: Well, he mightn't be anywhere near the level of a veteran of the craft, like Meiya and Michiru, or at the god level of Yuuko, but for a regular protagonist, just a youngster born in Heisei era Japan, to definitely have matured in that hellish world, you'd want to praise him, even if you weren't Mitsuki.

Ohmura: Around that section of the game, you feel uneasy playing it, because you think that the game might end there. [laughs]
If you were reading a book, for example, you could estimate how far you've progressed by how many pages were left, but when playing a game, you can't tell how far you've progressed.

K: I guess even a movie has a rough time frame of around two hours.
In the cases of games, the play time greatly varies from title to title.

Yoshida: I see. Then maybe in our next game, we might try implementing parameters that let you know the total length of the game and your current position. [laughs]

Ohmura: In the case of an âge title, that meter likely wouldn't move an inch, even after several dozens of hours of play. [laughs]

Was Meiya Based On Oscar from The Rose of Versailles?

K: On the topic of Mitsuki and Haruka, I wonder what Takayuki (★14) was like in that world.
At the time of release, there were quite a few people who wanted Takayuki to gallantly dash in when Takeru was in a pinch, and have them cooperate like the first and second Kamen Riders.
Recently, there have been a lot of people expecting a side story for Takayuki.

Suwa: It's quite surprising... that the players are expecting so much from Takayuki.

Kawada: But if you look at the first chapter of KimiNozo, he seems like a pretty good guy, and I think I understand the feeling of wanting to bet on that glimmer of hope that in that world, there's no doubt that Takayuki would have become a cool guy. [laughs]

Yoshida: The relationship Takayuki had with Haruka and Mitsuki before they entered the military academy might be interesting... Wait, no, no, that'd be too difficult to write.
I could make a whole game out of that. [laughs]
Anyway, the contents would look like something out of a KimiNozo fandisk. [laughs]

K: Alright, now let me ask who has left the biggest impression on you, in relation to the main heroines of Muv-Luv.

Ohmura: I guess the one who left the biggest impression on me would be Yuuko.
She was always scolding Takeru, but I learned a lot from her.

Kawada: Right off the bat, you're not talking about main heroines. [laughs]

Yoshida: In a certain way, I don't think the interpretation of Yuuko as a main heroine is wrong.
She has, by far, the most lines, after all. [laughs] But I guess it seems more appropriate to call her the 'hidden' main heroine?

K: If I remember for Hatano, it was Lieutenant Gorilla Girl, right?

Hatano: Why would you say that [laughs]? It's Kasumi. In Alt, Kasumi's background becomes apparent, and it illustrates her sadness.
That's what I liked. Also, I especially like the scene where she speaks about the truth, inside the escape shuttle that returned.

Suwa: I'm sorry, since they're not main heroines, but for me, it's Michiru and Walken.

K: One isn't even a girl. [laughs] Then what about you, Okada?

Okada: I didn't expect to like her, but it's Meiya.

Kawada: It's Meiya for me too. Since you said you didn't expect it, does that mean it was a different character for you at first, Okada?

Okada: It's something I can say since quite a bit of time has passed... but to tell you the truth, I had been writing articles in Dengeki Hime to try to increase the numbers of Sumika fans.

Suwa: What, really? I haven't heard that before [laughs]!

Okada: It's because I wanted players to get to like Sumika, then receive many shocks through playing Alt, since the more you empathize with her, the more you can enjoy Alt.
So for three years, I was working on those articles with everything I had, but when I actually played the game, I found that Meiya was an extremely respectable character. I was done in by her noble spirit.
That's all.



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A creature named Yoshida

★10: This was due to avoiding the reveal of detailed character concepts as much as possible, and making sure that if they were revealed, they would only be revealed in stages, to avoid taking away the enjoyment of the players.

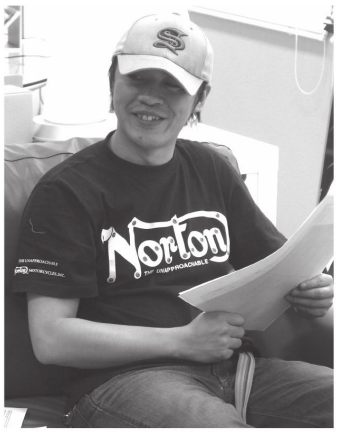
★11: An event that occurred ten years before the interview, where A creature named Yoshida visited the Yasukuni shrine, for his first shrine visit of the year. There, while waiting in line at the shops, he read a book named 'Eirei no Koto no Ha' (The Words of the Souls of the Heroes), which contained the last wills of kamikaze personnel and soldiers killed in the war. He was moved and invigorated by the many kind, yet masculine messages, and bought all the volumes, before going home.

★12: An ability to receive information of a 'future that branches in a better way', which seeps out of parallel worlds, in unused parts of the cerebrum, and subconsciously selects precise actions to choose the 'correct world'.

★13: In the all-ages version, this scene had Takeru's voice in it, so it was easier to understand his feelings. The screams mixed with sobs, as performed by Hoshi, pierce your heart.

★14: A fellow recruit of Haruka and Mitsuki. Takayuki was deployed to A-01 straight away, unlike the other two, who had their appointment delayed by a half a year, after an accident in the Comprehensive Combat Technique Evaluation exercises. The two girls had promised to confess their love to Takayuki once they were appointed, but twenty days before their ceremony, he died in Operation Lucifer. He probably wasn't incompetent.

★15: Referring to the protagonist, Oscar François de Jarjayes, from the manga 'The Rose of Versailles', which was set in the French Revolution. While being a woman, she had the masculine ability to take action, and was good at swordplay.



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K Saito

Yoshida: Okada's tastes sure are Japanese. [laughs] Something like supporting the underdog; I also tend to like unrequited characters.

The kind of character who endures without it showing; that kind we were talking about before. [laughs] So the first thing that popped into my head when creating the character of Meiya was Oscar from 'The Rose of Versailles' (★15).

Specifically, the one from the anime. [laughs] After seeing her on television in middle school, I began to like that character's way of life... I strongly recommend that people who like Meiya go and watch the anime version of The Rose of Versailles!

For as long as I remember, I never quite understood what 'moe' was, but what I feel for Oscar is probably that [laughs]!

K: I see. Oscar, huh. Now that you mention it, you might be right.

Yoshida: By the way, her way of speaking is based of Lafiel in Crest of the Stars.

This was because I was reading 'Banner of the Stars II' while working out the plans for Alt. [laughs]

Okada: Meiya really is someone who symbolizes the values and themes presented in Alt.

During the confrontation with Target Alpha, all that became apparent was an absolute difference in their values, and questions were used to answer questions so they couldn't make any notable communication.

Meiya's actions then could be taken as deeply meaningful.

Yoshida: She suddenly barged in, and without asking any questions, ruined all chances of communications. [laughs]

K: Well, if you strip it down to that, it's true. [laughs]

Okada: But that's not all it is. Once they had hit a wall in the conversation with Target Alpha, Meiya had pushed the situation forward, after Takeru entered in a rage upon seeing Miki's corpse.

It's easy to ridicule her actions once you know the ending of Alt, but it isn't that simple when you put yourself in that instant where her life was on the line.

Yoshida: Yes, she decided what she ought to do and moved forwards. Meiya follows her own beliefs to elicit an answer, and can act on it.

She's no different to Sagiri. She's a symbol of those with that conviction.

Ohmura: I see. Therefore, Meiya had to die, based on the themes of Alt.

Hatano: To speak in extremes, Target Alpha was also the same kind of character as Meiya and Sagiri...

Yoshida: You're right. As an example, there's a famous story that ridicules the behavior of Americans.

They created diet ice cream because they wanted to eat more ice cream. They created zero calorie cola because they wanted to chug down more cola. In the end, they use liposuction and surgery to shrink their stomachs.

They don't stop their desires, rather, they force their surroundings, or the situation, to change. Good or bad aside, they have a clear answer and belief.

And it's a fact that the world, and history, have been built up by the efforts of people like that.

In turn, do we have convictions to follow? Target Alpha was a tool to reveal things like that; a symbol of the lack of communication, but one that questions you.

What are you? Can you prove that you are a lifeform?

Enough Time Has Passed To Reveal Alt's Discrepancies

Ohmura: As expected, Alt's deep. I want to start hearing about the background of more parts in more detail.

Hatano: Since we've gone to the trouble of having a discussion with spoilers allowed, I want to talk about things like Meiya's references we talked about earlier, and ask questions about points I'm not sure about. Is that OK?

K: Well, those who are reading this should have already played the game, so it should be no problem.

Kawada: Well then, as a fellow developer, I'd like to ask this next question for future reference. [laughs]

If you put so much effort into production, wouldn't it be hard to find a balance between displays that are real and those that are fake? [laughs]

Yoshida: I tend to draw that kind of line intuitively. For example, the HSST launch scene in 'Rumbling Spacetime'.

Based on the background settings, Meiya and the others should have been stored inside a container while boarding a TSF, and to top it off, there aren't any windows in the cockpit.

But in the scene with a close up of their faces, they're bathed in morning light. That was just because it looked cooler that way. [laughs]

In so-called 'highlight scenes', the background setting and realism become less important than supporting roles. [laughs]

Kawada: [laughs] That's the best way to go about it, since in that scene, everyone agrees with it, without raising any questions. [laughs]

Yoshida: Also, we kept the Susano-O outside of the screen on purpose. Since if it had just floated up using the anti-gravity drive, the build-up from Radhabinod's speech to the C Melody of 'Carry On' would all go to waste. [laughs]

Okada: You're right in saying that, since looking around the net, no one seems to be pointing out the morning sun in the cockpit. [laughs]

Yoshida: We haven't received complaints about that either. Although we do get the question, "How did Meiya infiltrate Target Alpha's block?" quite often. [laughs]

Ohmura: Ah, I understand. You start to wonder that during your second playthrough. [laughs]

If you remember the remaining amount of S-11s, there's no problem, but it becomes hard to keep track of them at one point.

Okada: I don't think that's what the players are asking about. I think they're not convinced with a hole being opened in the wall with a single S-11.

Suwa: You won't understand that part unless you remember the foreshadowing (★16) from the explanation Meiya gave, prior to Kei and Chizuru's self-destruction.

Yoshida: There were other points, which, personally, I was certain that people would poke at. But they ended up largely being ignored. [laughs]

K: Whereabouts are they?

Yoshida: I'm talking about how Meiya avoided the explosion of the S-11 even though it destroyed the septum. Doesn't that seem more strange to you, compared to the other questions?

Suwa: Ah, right. Now that you mention it. Though it's a wide area, the drift before Target Alpha is a closed space.

Is there some kind of reason for that?

Yoshida: I guess there is. [laughs] The S-11's original description was that its explosion could be directed in order to effectively destroy reactors.

Of course, by adjusting the placement of the explosives, it could detonate in all directions, like when it detonated mid-air in the main hall. But it's set to be directed by default, to avoid catching allies during self-destruction (★17).

Ohmura: That... wasn't explained in the game, was it? Why is that, when you had most parts explained in such detail?

Yoshida: Well, if we explained that beforehand, you'd be able to predict all the situations where the S-11 could be used. [laughs]

Even though some might say that players won't be satisfied unless everything's explained, I'm avoiding taking away the enjoyment of playing the game. [laughs]

Hatano: I see. Then how was Miki's corpse carried to Target Alpha?

That was a big mystery to me.

Yoshida: Ah, she was carried there by small strains of BETA, by an order from Target Alpha. They went through drifts small enough for the small strains to pass through.

Though you can't see them, based on their size in the image. [laughs]

Kawada: Come to think of it, it has been shown several times in Alt that hive interiors are crawling with small strains, like in the Sadogashima Hive.

Suwa: There's a strong impression that Sumika's reading information is perfect, so it's easy to make the misconception that there's nothing she doesn't know. That's why it's hard to imagine that there are things that aren't explained in Yuuko's briefings.

Kawada: But in fact, they didn't know that huge thing existed (★18), so it's not like Sumika can see everything.

But it's just the belief that her reading is like telepathy—I can't shake that off.

Ohmura: Especially during your first playthrough… You're not in a position to be worrying about things like that. [laughs]

Hatano: Also, I think that Laser and Heavy Laser classes didn't exist a long time ago, so what was combat like during the Lunar War?

Yoshida: Ah, there's a background concept that the original strain of the Laser class had always existed, and was a BETA taking on the role of extracting resources and melting bedrock.

On the lunar bases, there was only military equipment such as machine guns, so in the initial stages of the war, they were dedicating themselves to defenses by refurbishing rovers and heavy machinery that already existed.

In the beginning, the reinforcements and armaments sent from Earth were just things that didn't have a high cost to deploy orbitally, like anti-tank missiles and heavy support weapons. [laughs]

Initially, in that world, although they had some research done on things such as space fighter jets and bombers, none were ever built, so while making makeshift ones from things like lunar launch vehicles, the pressure was mounting on them.

Although combat deployments of Hardiman forces (★19) did make it in time, air operations such as mass attacks, and tactical and strategic bombardments, were not conducted until just before the retreat. Furthermore, they could not be conducted effectively enough for the BETA to consider them a surprise.

Well, in a sense, the fact that humanity was initially slow to adapt would end up saving them (★20).

And so, in order to counter the air operations and bombings of the Sino-Soviet Forces, the BETA transferred the role of the original species of Laser class to an anti-air role, and they evolved into the Laser and Heavy Laser classes.

[Commotion from everyone]

Hatano: So, as a result of the combat on the lunar surface, mankind--

Ohmura: —Hey, hold it Hatano. [laughs]
You're mistaking this for a report on a lore book, aren't you?
Don't you think that if you ask everything about that here, there'll be no point in releasing a lore book anymore? [nervous laugh]

Hatano: Ah... that's true. Sorry. [laughs]

[Everyone laughs]

Yoshida: It's OK, Hatano. There's still plenty I haven't talked about, regarding Muv-Luv and Alt. [laughs]
And also, there's plenty of development background information that I don't think I can talk about until they get turned into an anime in the future.

K: Ah, are you talking about things like the last will and ending?
Especially those related to the final episode. [nervous laugh]

Ohmura: What? What is it? Please tell me.

K: No, I can't, since the main topic of today's discussion is 'Having Played Alt'. [laughs]

Ohmura: No way! You went as far as to say all that and you're not going to tell us?
That's no fair. [laughs]

Yoshida: Oh, Ohmura. Is it really okay to render a lore book pointless?

Ohmura: —No, that won't do. That'll be a problem.

[Everyone laughs]

Expectations and Thoughts About Alt's Ending

K: It looks like we're nearing a time where we'll have to wrap up the discussions.
Now onto the final topic: What did Muv-Luv and Alt mean to everyone?

Ohmura: It's really hard to summarize it in one term, but I feel that when people start with Muv-Luv then reach Alt's endings, they're split into two groups: those who feel 'it's finally over' and those who feel 'it's nowhere near over'.
I think I'm the latter.

Hatano: I guess I'm one of the latter too, but when I reached the ending on my first playthrough, I felt like I would miss it.
The subtitle of the final episode was 'Muv-Luv' and at the end, the theme song 'Muv-Luv' plays too. I ended up crying at that display, even though I knew beforehand it would happen. [laughs]
When I look at the opinions of the magazine's readers, they're the same as mine. Even though they knew the song from years ago, they suddenly realized the true meaning of the lyrics at the ending, and have mixed emotions about how deep it is.
A feeling of loneliness, like a festival had finished. A sense of satisfaction. Being moved. All those kinds of emotions built up and naturally, you feel like crying...

Yoshida: From the start, one thing in particular we decided was that the opening theme song would play at the grand finale, and we had the lyrics written according to that.
So we had the song 'Muv-Luv', which plays at the end of Alt, made into an arranged version with more polish in its rhythm and interlude to give it a more optimistic vibe, so that it would be fitting for the grand finale.

Hatano: That interlude is also something that makes you cry. [laughs]

Ohmura: Well it's true that it ended up being delayed many times, but even that had ended up as something that could be called a 'Muv-Luv' phenomenon.
If they pull that kind of show right at the very end, of course you'd be moved.
I'm sure that if Alt was released according to the initial plans, as a single set with Muv-Luv, or was released within a year of it, people's experience of the ending would have been different.

Hatano: Another thing that was key throughout the series, aside from the theme song, was Sumika's diary.
Sumika's diary in Alt was inserted at the start of the Muv-Luv demo, and Extra also starts with her diary.

The Characters Still Feel Alive Somewhere...

Kawada: Ah, I understand that. As a technique, it's a device that acts as an introduction to tie together worlds that are distant, spatially and temporally. But after playing Alt, you start to see a different meaning behind it, even in Extra.
Like the results of the foreshadowing that were focused on Alt, rushing towards you in one go.

Hatano: Looking at the first diary entry of Extra after playing Alt, that's another thing that can make you cry. [laughs]

> But I felt that this game itself was a trial for both my professional and private selves.
> ——Yukio Okada

Okada: And the everyday scenery, where there's nothing special, with Meiya and Marimo there, also makes you cry.
You can really feel how valuable a peaceful world full of clichés is.
And then when you play Extra once again, you can see the cause and effect hidden in the events that you thought were 'cliché' or 'tropes', and you think, "Ah, so it's some kind of super-trope". [laughs]

Ohmura: That's why I didn't feel like it was over, at the ending of Alt.
I honestly felt that the story was going to continue, even after that, though there's no game after this to depict it.
That lingering feeling felt good.

K: What did you think of it, Suwa?

Suwa: As an editor, I should really be separating my work from my attitude as a huge fan, but to tell you the truth, in relation to Alt, those two lives ended up overlapping in many respects.
There are things I regret or reflect on as an editor, such as wishing I could've done more to give Alt exposure or wishing I could've gone about it in a better way.
But as a huge fan, I was very satisfied with the game itself.
Strangely, I didn't feel that I would miss it, even though it was ending and I had been involved with Muv-Luv for almost seven years.
Probably because I've been involved with the characters for so long, I felt like they continued to live on somewhere, and that their everyday lives just continued. [laughs]
By the way, I'm of the school of thought that doesn't need a continuation of the final episode. [laughs]

Okada: Like Suwa, I also don't feel like it's over yet. But I felt that this game itself was a trial for both my professional and private selves to overcome.
It was a game that continuously tested my heart, as if I was climbing up a wall that kept getting taller.

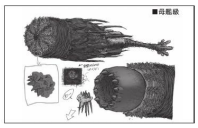
Hatano: Alt is an ADV that would normally be unimaginable in every aspect, not only in the R-18 industry, but also in the overall consumer industry.
Its play time, themes, volume, effects, and the price were all exceptional. In that sense, it's close to a miracle.
Personally, there's no other game that has been so thought provoking. But I think I'm being a bit gross by praising it too much. [laughs]

Ohmura: I'm not sure if this is an appropriate expression, but to me Muv-Luv and Alt were like 'toys', in the sense that I wanted to just keep playing with them forever.
When I was introducing it in a magazine, the media mix methods being used were interesting, and when it actually came out, that was a surprise too. [laughs]
I could see that Alt's world would continue even after

★16: While the second wave of BETA approached the main hall from the drifts in the Original Hive, Meiya compared the S-11's explosion, which eliminated the BETA in the main hall, to the vibration wave pattern of enemy reinforcements. She explained to Sakaki and Ayamine that it was possible to calculate an effective blast point, using structural mechanics, since she realized that the hive wall's structure and material density were not consistent, and that it would be possible to open a hole in a section with low toughness.

★17: Even if the blast could be directed, there would be secondary damage from the blast and its shockwave. And so, after setting an S-11 in a weak section near the second septum, she retreated to the first septum. With the tapered space of the lowest part of the Gate class BETA behind her, she kept the damage she would take from the detonation to a minimum, by using an improvised blast shelter, from layering the corpses of Destroyer classes. It was a flexible response, only possible of Meiya who had broken through many past situations by using appropriate data on the scene, as well as precise calculations, such as those demonstrated with the boulder on Tengen Mountain, and the analysis of the Main Hall's internal wall composition.

★18: The unidentified large strain that appeared in the main hall. It is called the 'Train class' or the 'Carrier class' by the developers.



★19: Exoskeleton. The Hardiman, which was adopted by the US Army before TSFs. An anti-BETA weapon used by infantry. They were followed by many successors and derivatives, such as those with heavier armor, heavier weapons, and some with jump packs. These continue to be operated in mobile infantry forces around the world.



★20: If it is supposed that the BETA established a countermeasure to flying objects in space, during the Lunar War, there is an extremely high chance that the eradication of the landing unit in Canada would have failed. In that case, there is no doubt that mankind would have been wiped out in fewer than twenty years.

finishing the game, so I'd like to be able to play with it from here on, too.

Okada: You're right. I'd like to keep playing too.

K: How about you Kawada?

Kawada: What I personally felt when playing it was roughly the same as everyone else, but since I ended up playing Alt after becoming involved in the game development scene, I became really worried that if you raised the bar too high you'd be in trouble, while at the same time, I was impressed that you could do that. [laughs]
I also thought that I mustn't enter the same playing field as this. [laughs]

Yoshida: It's true that the direction Alt took isn't the only right answer, and that there should be a variety of values and approaches. For both the players and for us, I definitely don't see it as a negative, for the industry to diversify.

Ohmura: No, how much effort you put into production value is pretty important. Because you're professionals, it should be expected you'd make a good game.
But putting in effort to get players to actually buy the product is equally important. In that sense, production value, even in promotion is really important.
What's really amazing about Alt's promotion, or rather, Alt's trick, was that it was released exactly three years after Muv-Luv.
[Sarcastically] To tell you the truth, that was to link the players with the time passing, as Takeru had experienced it!
Now that I think about it, you could have done that. It would be an innovative display, as expected of âge. [laughs]

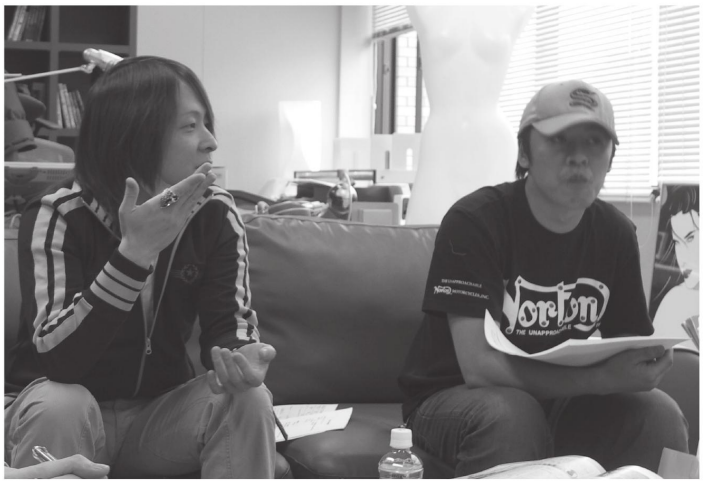
Kawada: It's true that no one would be able to mimic it [laughs]! PC News wouldn't come to ask about it either. [laughs]

Yoshida: —No, no, no, it's not something we arranged! Please give me a break!
What are you going to do if someone believes you? [nervous laugh]

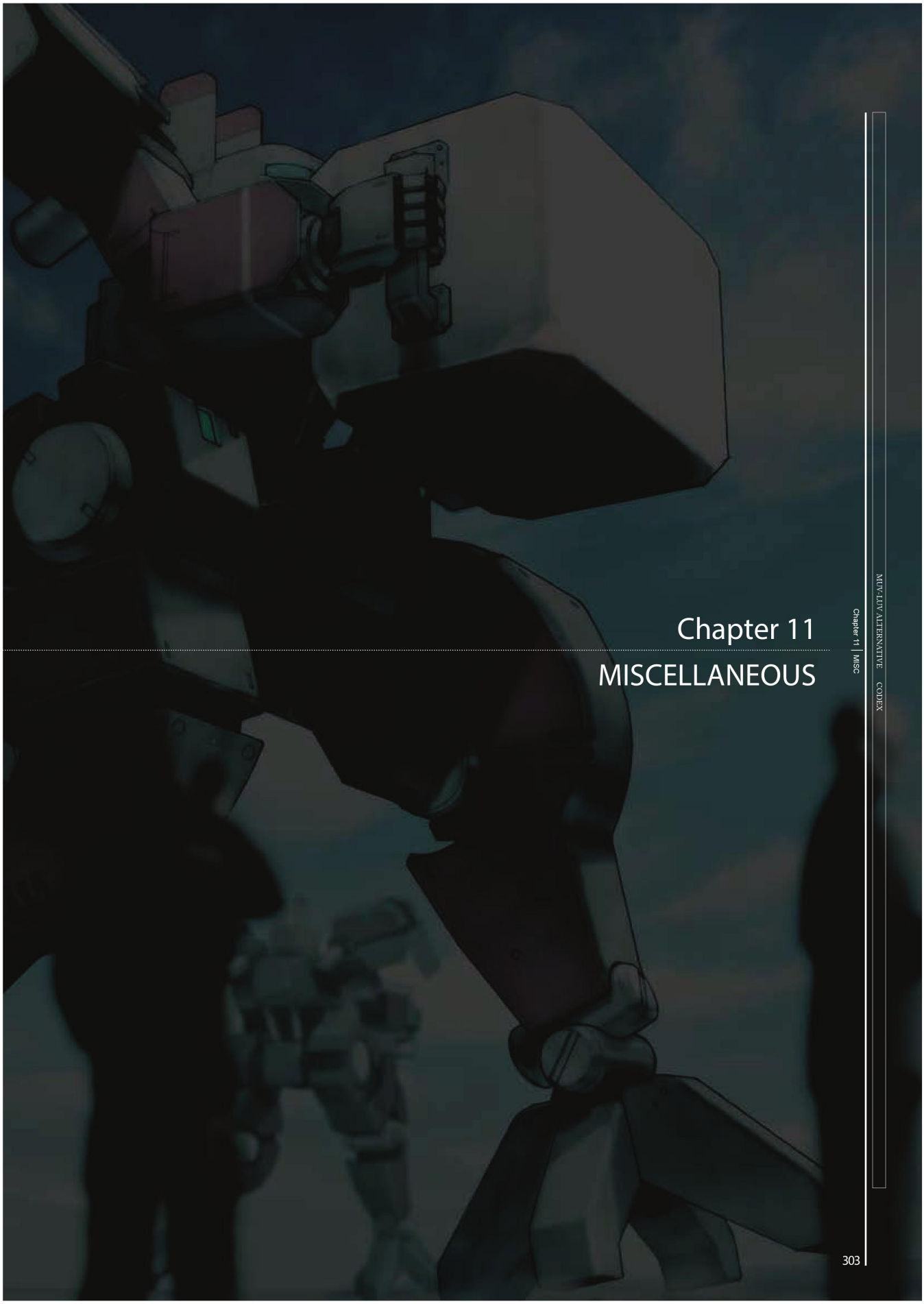
[Everyone laughs]

K: Uhh, because this is starting to take a turn for the worse, I'd like to call an end to the second half of our discussion here [nervous laugh].
Everyone, thank you for sticking with us for so long.

Everyone: Thank you.







Chapter 11
MISCELLANEOUS

The Imperial Royal Guard are the elite force of the Empire of Japan, but they are under the command of the Shogunate rather than the Ministry of Defense.
They have made repeated appearances in the Muv-Luv series, and while they stand out with their caste system and unique equipment, their background and details are shrouded in a veil of mystery.
However, in the novel/Windows version of 'The Imperial Capital Burns', which was announced earlier, some of this veil was torn down for the first time.
As an aid for facilitating discussion among readers, this section will reorganize the disclosed information. However, with constraints on space, details of information which has already been disclosed will be abbreviated or omitted.

Authentic Records

Imperial Royal Guard

~The Light and Shadow~

The Imperial Capital Burns
- The Anniversary of it Becoming a Game - 1st Special

muv-luv alternative TOTAL ECLIPSE
Windows Version Release Anniversary Special

This is the truth!

■ The Warrior House System Under the Shogunate - The Organization to Succeed the Bakufu

The restoration faction and the Edo Shogunate (also known as the Edo Bakufu) restored imperial rule by uniting, and would together immediately work on reorganizing the national forces in response to the approaching threat of foreign powers after the new government was formed, following a period of turmoil.
While this was underway, they established the Imperial Royal Guard—an independent and armed organization separate to the IJF, which would be dedicated to guarding the Emperor and the Shogun, who had full authority to act in the Emperor's name.
The members of this force were descendants of warrior houses, and the group distinguishes the status of individuals based on a military rank system as well as the status of their warrior house **[See Table 1]**, to established a military caste system. Uniform worn, craft piloted, and colors used by members are also chosen to match their status **[See Table 2]**.

The function of the colors is to make the status of the individual visible. The need for visibility comes from norms of warrior houses, such as how those from military families should always be at the front and set an example, and how those in high positions require eminent virtue.
This system seeks to establish both higher autonomy and morale, by having many individuals monitoring each other.

■ The Narrow Escape from the Battlefield - The Final Privilege

The Shogun acts with all authority on behalf of the Emperor of Japan whom the Shogun is also tasked with protecting. The organization which ensures this protection is the Imperial Royal Guard.
On the other hand, the IJA and Imperial Mainland Defense Force protect not only the country, as suggested by their name, but also the lives and property of citizens during times of emergency. In order to achieve these goals, the IJA will sometimes be forward deployed overseas while the MDF remains as the rear guard. Meanwhile, the Royal Guard acts as the force for final stage operations and is kept furthest back to protect the Emperor and the Shogun.

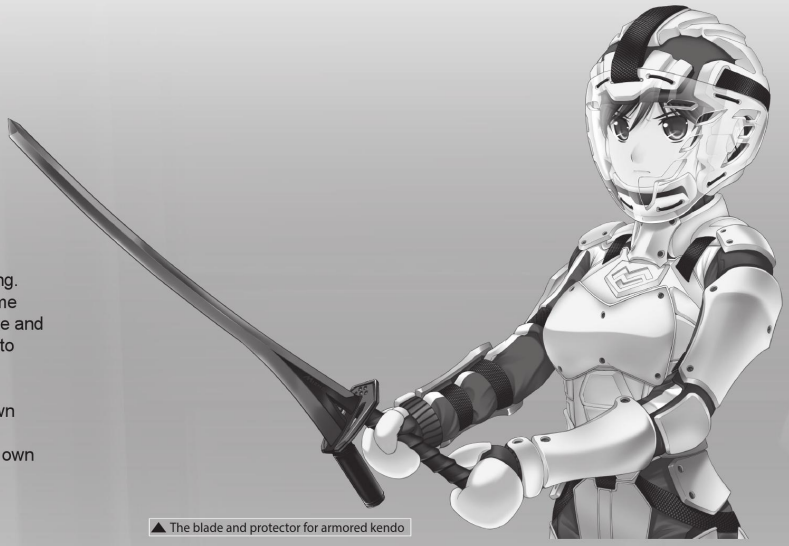
To concisely summarize the combat with the BETA, as determined by data collected since the beginning of the Great BETA War, it would be a war of attrition against mass wave attacks under conditions where air superiority has been lost.
A similarly concise summary can be made of the Royal Guard's expected combat deployment situation—they will have the BETA close in on them, and the chance of close-quarters dogfighting occurring is 100%.
For new Surface Pilots, the average survival time is eight minutes. A majority lose their lives in close-quarters dogfighting. Even across the globe, the main cause of death of Surface Pilots, leading by an

[Table 1] The Status of the Warrior Houses

Shogun House	The Regent House whose head is crowned the Shogun. They hold an enormous influence on the Shogun's conduct of state affairs. Once the Shogun abdicates, the house returns to the same standing as the other Regent Houses.
Regent Houses	The Five Regent Houses form the Supreme Military Council (See note 1). They assist in the Shogun's administration, alongside the Shogun House.
Shinpan Warrior Houses	These positions include shinpan of the old bakufu, as well as warrior houses that played a central role in overthrowing the bakufu. Houses that are part of the lineage of the Five Regents are treated as high ranking shinpan warrior houses.
Fudai Warrior Houses	This position includes fudai of the old bakufu, as well as warrior houses that contributed to the overthrowing of the bakufu. Houses that are part of the lineage of the Five Regents are treated as high ranking fudai warrior houses.
Tozama Warrior Houses	This position includes tozama of the old bakufu as well as warrior houses that were promoted due to their contributions to the restoration. In contrast to newly promoted warrior houses, the houses that are a part of the lineage of the Five Regents, or those with lineages that have continued for more than three generations as tozama are treated as high ranking tozama. The Shogun is its leader.

(Note 1) The Supreme Military Council / An institution of the Five Regents that supports the Emperor's administration.

overwhelming margin, is close-quarters dogfighting. This fact is why the warrior caste inevitably become Royal Guards. They must act as a privileged caste and have idealism and emotions trump logic, in order to face the BETA in such conditions.
It is hence clear that the Royal Guard focuses on close-quarters dogfighting abilities, procures its own unique equipment, has its own unique combat technique of 'Armored Kendo', and maintain their own unique education curriculum.



▲ The blade and protector for armored kendo

■ The Tradition and Exclusive Nature of Warrior Houses - Prejudice Against the Royal Guard

Since their goals concern the protection of the Emperor and Shogun, the Imperial Royal Guard's missions are extremely limited and are kept as top secret. Because of this, much of the truth about them is isolated from the nation's citizens and mass media. Apart from a certain period during the Taisho era, this had never been treated as a significant problem.
However, with the loss in the war against the US, the situation completely changed.
Following the democratization and military reforms that were terms in the peace treaty, the mass media began to highlight the exclusivity of the Royal Guard and started to build momentum behind a negative attitude towards them, by calling them old-fashioned feudalists and segregationists.
Since then, biases against the Royal Guard have been ingrained in many citizens.
The truth behind the sudden change in mass media was caused by America's strategy to divide and weaken the nation, which was concealed in the terms of the peace treaty. The coverage, which was blatant and arbitrary, as well as being based of resentful and emotional perspectives, was so shameless that it would not normally have been accepted.
But the citizens, seeking a group to take responsibility for losing the war, found an easy scapegoat in the Royal Guard, which had a hardline anti-foreigner stance.
The negative campaigning that occurred immediately after the war had an overwhelming effect, but over time, it would quiet down.
The citizens' guilt over their actions towards the Royal Guard faded, following the fact that Shogun's position had essentially become an empty title after the organizational reforms in the peace treaty, and this guilt would be replaced by a regained confidence stemming from Japan's economic growth helping it return to the international society, all the while making rapid advances in science and technology. Essentially, the unfortunate past of citizens' vilification of the Royal Guard was forgotten.
However, with the outbreak of the Great BETA War, criticism of the Royal Guard was suddenly revived, even despite the economic boom Japan was experiencing as a result of the special procurement demand from mainland Asia.
Even as the position of Shogun started to become more and more of a merely symbolic role, the Royal Guard still inevitably discriminated based on house standings, as dictated by the old warrior house system. Furthermore, compared to the IJF, the Royal Guard would also receive privileges in the military, as well as extravagant and unique equipment and

[Table 2] The Royal Guard Status Identification Colors

Color	Status	[Titleholders / Pilots]
Dark Purple	Emperor	—
Purple	Shogun	Koubuin Yuuhi Mitsurugi Meiya Saionji Tsunemori
Dark Blue	Imperial Family, Shogun House	—
Blue	Five Regents	Ikaruga Takatsugu Takatsukasa Kyoko
Dark Red	High Ranking Shinpan Warrior Houses	Makabe Seijyurou Makabe Sukerokurou Kisaragi Kaori
Red	Shinpan Warrior Houses	Tsukuyomi Maya Tsukuyomi Mana
Dark Yellow	High Ranking Fudai Warrior Houses	Takamura Yui Takamura Masatada
Yellow	Fudai Warrior Houses	Amamiya Mariko
White	High Ranking Tozama Warrior Houses	Ebisu Minagi Kamiyo Tatsumi Tomoe Yukino
Pale Gray	Tozama Warrior Houses	Iwaya Eiji　Yamashiro Kazusa Iwami Aki　Noto Izumi　Kai Shimako
Dark Black	Those with a history in the national forces, but are not descendants of a warrior house	
Pale Black	Applicants that are not descendants of a warrior house	

★ In the game, issues such as budget, file capacity, and data management limit the colors displayed to only the base six, without differences between pale and dark

facilities, due to their function. Along with these several 'easily noticed' facts, scandals of dubious authority that were designed to appeal to the masses were being report day after day in tabloids, such as the 'Warrior House Daughter Scandal'.

Notably, political newspapers would incite the situation with seemingly believable statements such as how the Royal Guard are a "privileged class, which sit on top of their vested rights, and fulfill their desires however they see fit," while also posing questions such as why the Royal Guard needs such extravagant equipment while arrogantly sitting in the positions that are furthest back. Many citizens would accept these ideas, having been imprinted with so many negative impressions over the years. Just as they had in the past, they latched onto these ideas as an outlet for the stress resulting from the uncertainty imposed on them, while wanting to turn away from the fact that the BETA threat was closing in.

America, with its hopes of rebuilding their anti-Japan/anti-Asia strategy after the annulment of the US-Japanese Security Treaty, could be seen as central to the revival of the anti-Royal Guard sentiment. It was an excellent opportunity to not only restrain the Royal Guard, which was the flagbearer of a hard anti-US stance, but to also solve the post-war mistake of failing to disband the warrior houses. However, what deserves more of a mention are the movements of the domestic powers. The biggest reason why the Americans' engineering of domestic mass media was tolerated was due to the under-the-table conflicts between several ministries regarding the allocation of budget.

The Ministry of Defense manages the army, which is forwards deployed to the continent, and MDF, which would face the BETA head on, in the event of an invasion. For some time, they had been appealing their lack of budget. When considering the impending invasion of the mainland by the BETA, there was nothing strange about being resentful of the Shogunate, which possessed the Royal Guard, which was allocated funds far exceeding their scale.

In response to these agitations, the Royal Guard kept the moral high ground. They didn't justify themselves, or rebuke the emotionally charged and unreasonable claims for equality from those who themselves bore no responsibilities. Although this stance was based on the principle of always acting virtuous, the mass media took advantage of it by claiming that the Royal Guard was out of touch with and ignored the citizens, resulting in an even worse national sentiment against them. Just as the citizens had themselves done, the Royal Guard also held too tightly onto their beliefs, and had thus neglected the real nature of the citizenry.

■ The Disadvantages of Nobility and Responsibility - The Darkness Held by the Royal Guard

The statuses of houses of the former bakufu were in fact decided at the Battle of Sekigahara. However, the permanent settlement of the households' statuses had never been institutionally recorded, and there had in fact been many instances of punishments resulting in their destruction, and house statuses being changed as rewards. It was during the transitionary period of the new government after the transfer of power back to the Emperor, the Taisei Hokan, where these changes were most significant.

The house standings of the old system (Shinpan, Fudai, and Tozama) were maintained in principle, but the warrior house system fell into a temporary state of chaos due to the changes in house statuses (including the lowering of standings), which were based upon how much they contributed to the restoration or how useful they were. Non-warrior house descendants who also proved their worth in their contributions to the restoration were also made into new warrior houses, leading to further confusion. Many problems existed with the confusion that lasted several years, such as those regarding the institutional reforms, taxation, and balancing the decisions with the Imperial constitution. However, what was common at the roots of all of these problems was the latent discriminatory sentiment towards the 'newcomers' such as those who rose in ranks, or were promoted from civilian status.

Even though these warrior houses faced discrimination, harassment, and political hindrances, they acted in good faith of what was expected of warrior houses, and they never made an uproar or leaked the facts to the outside. The loyalty to the Emperor and the new government of the warrior houses that were promoted during the restoration was intense, and none of these families were recorded to ever have openly opposed them.

A majority would endure the discrimination, though many abolished their houses and withdrew themselves in order to try to bring stability to the Royal Guard as a whole. However, it is ironic to note that the side perpetrating the discrimination was acting in the same way. A large number of warrior houses, unable to bear the dissatisfaction of the changes to the house standings or the institutional reforms, would abolish their houses to lower themselves to civilian status.

As a result of their achievements in weapons manufacturing, the Takamura house were allowed to visit Edo Castle and were promoted from Tozama to Fudai during this era. This measure was taken to ensure that houses with technical skills that were useful for the new government would remain within the Royal Guard's influence. The reason why this was necessary was because of a 'brain drain' resulting from the influential yet dissatisfied warrior houses that could successfully manage their own domains departing from the new government.

Under the old system, many houses were succeeding in fiscal management of their domains through things such as trade. However, many would come to renounce their warrior house status due to the new restrictions by the government on the Royal Guard's involvement in commerce, which aimed to encourage private sector growth and strengthen competition. On the other hand, there were warrior houses that disregarded the newfound economic successes of ex-warrior houses that descended to civilian status, and these houses would continue their economic activities even under the harsh restrictions.



■ Yamashiro Kazusa, from a tozama warrior house, being picked up by a limousine.

Since the institutional reforms that followed the loss of the war to the US, the restrictions on warrior houses in engaging in economic activities have been lifted, and many of these houses have achieved rapid growth. However, this drew the attention of the mass media, which was eager to find a scapegoat to take responsibility for losing the war. Resentment towards warrior houses was stoked by statements such as how "they make profit by taking advantage of the power of being the privileged class," and such incitement turned them into targets for harsh public scrutiny.

Even as of 2001, the press-coined term 'New Zaibatsu Warrior Houses' still retains some of its derogatory undertones. And the people who use this term against the economically successful warrior houses are none other than the Royal Guard warrior houses that didn't achieve economic success.

■ Signs of Reform Following the Loss of the War

The reforms made after the loss of the war strongly reflected the intentions of the allies, but more specifically, those of the US. America feared the nebulous 'spirit of the Japanese people', which they had glimpsed during combat. They considered this cultural aspect to be madness, and sought to destroy it from its roots. And so, they set their sights on weakening the essence of the Royal Guard, which was both at the forefront of the anti-US sentiment and was also the symbol of the samurai spirit. Of course, this would be carried out in humiliating ways, with acts such as turning the Shogun and the functions of the Supreme Military Council into empty titles.

At the same time, the US dealt with warrior houses dissatisfied with the reforms by opening several policies, including those to lift the bans on entering economic spheres, so that the samurai essence would be diluted, with these houses devoting themselves to economic success. This also had the effect of separating the citizenry from the wealthy, privileged class, by creating a more negative national sentiment against them.

As previously mentioned, America's intentions had succeeded in many aspects, but they had completely failed in one. However, at the very least, they had successfully placed shackles on the Royal Guard by lowering the significance of the Shogun.

Even the Shogun, Saionji Tsunemori, acknowledged this as he spoke at the Royal Guard operations command headquarters in the basement of Nijo Castle, during the defense of the Imperial Capital. It was also due to this crisis that those of the next generation, from radical conservation groups that honored tradition, would advocate for a paradigm shift.

■ A New Hope Emerges After Stagnating

The Royal Guard is a conservative organization entrenched in tradition and conventions. However, in 1998, they caught up with social trends, and the male chauvinist tradition has, at least officially, been quelled. In fact, since the post-war reforms, there have even been female Surface Pilots, and gender discrimination has been forbidden in every position. However, this is only within the organization of the Royal Guard. The warrior houses themselves still foster their conventions and customs. In particular, regarding the heads of warrior houses, having a female as the heir is accepted



■ Koubuin Yuuhi

in principle, but there are still many difficult hurdles for women to overcome. This was clearly demonstrated in the scene where Takamura Masatada announced Yui as the next house head.

Due to the fact that even the high ranking fudai warrior house of Takamura faces strong opposition, there's no need to explain the situation for the Five Regent Houses, which are in even higher positions. But in fact, the current head of one of the Five Regents, the Koubuin House, is Yuuhi, who is far removed from distinguished military or diplomatic service, and is in fact, still a young girl.

Also, Kyoko, the head of the Takatsukasa House and the cousin of Yui's mother, is first in line to inherit the family estate. Even though she does excel in combat, this is still unexpected of a woman. How was this possible in the Koubuin and Takatsukasa Houses?

The answer mostly likely rests in the bureaucratization of the Five Regents, and political bargaining. Both houses had adopted organizational defense measures that were concerned with the future of their houses.

How did you find this special and its clarification on the circumstances of the Royal Guard, which had been partially revealed in 'The Imperial Capital Burns'?

What I would like to state here is that the contents of this special are limited to what has been depicted in titles up to now, as well as the Windows version of The Imperial Capital Burns. Therefore no new information has been disclosed. In regards to missing links from the series up to Alt, such as Ikaruga Takatsugu and Takatsukasa Kyoko, we ask you to look forward to mentions of them in future related titles.

Historically, there has not been a case of a female being the Shogun, or even being nominated for the position, for it was both an implicit and absolute convention. Considering the combat situation of the continent at the time, there is no doubt that the members of the Five Regents had foreseen the possibility of a BETA invasion of Japan while either the current or next Shogun held office.

Even if the BETA were to be repelled, the resulting situation for the Shogun may play out like the loss of the war to the US, since they would bear the damage, and hence responsibility of having the mainland turned into a battlefield. When considering the circumstances surrounding the Royal Guard, as previously mentioned, it should be very easy to understand why this would be the case.

And so, by instating female heads of their houses, the Koubuin and Takatsukasa houses made a double-barreled political decision that would not only dispel the negative impression of being a male-dominated culture, but would also protect their houses against becoming the next Shogun house.

However, this decision would end in granting the Koubuin House the unwanted honor of 'producing the first female Shogun', and this would later greatly sway the fate of the Empire several years later. Behind Koubuin's ascension to the Shogun house was much influence from the involvement and frustrations of Ikaruga Takatsugu, an individual who strove for a paradigm shift.



ILLUSTRATED BY RYO UTSUGI / SANGOKU MUSOU

Reportage

Withdrawal from West Japan - The Defense of Kyoto

~From the notes of a certain war correspondent~

The 1998 Withdrawal from West Japan and The Defense of Kyoto.
The loathsome memories of witnessing the daily lives and the
beautiful capital of those in West Japan be crushed in less than a mere month.
There are countless stories of the experiences of the imperial citizens
as they evacuated, but there are very few with insights into the front line.
Even now, with the strict controls on information, details of the
combat situation of that time have not been brought to the surface.
However, the day has come for the truth of those front lines to be brought to light.
Our editorial staff received information of a journalist who was stationed
as a war correspondent.
We immediately attempted to make contact with this reporter.
However, they were reluctant to speak of the circumstances of the
Defense of Kyoto, and we were not able to hear their story.

We would twice more ask about the circumstances of that event,
but he stubbornly refused to speak.
It was a week after our third meeting that the situation began to change.
A letter and a notebook with a leather cover had been delivered to the
editorial department.
Inside the worn notebook were densely packed entries, which he had likely
scrawled over the faded pages. In contrast, the letter concluded with the
neatly written sentence in the entire passage.

"This is everything I saw"

Why had he suddenly changed his mind in revealing this notebook?
It is impossible to read the reporter's true intentions from this letter alone.
A feeling welled up inside me, wanting to find the reason. But for now, I believe that
we should give our all to widely report what this journalist had seen.
We must. You could say that this is our duty.
The truth of the Withdrawal from West Japan and the Defense of Kyoto, both of which
have been kept under wraps for a long time, shall finally be unraveled...

The following is a record of the front line, as written by a single war correspondent.

(Some adjustments have been made for ease of reading)

The Tragedy of Operation Gwangju on the Continent Casts a Dark Shadow Over the Defense of the Mainland

It was only this June in which I, having been requesting permission to cover the defense system of West Japan, was finally given clearance to do so. But even so, this would only mainly involve interviews with the headquarters of the various divisions in the Imperial Capital, and with the rear end support forces, such as training units and supply groups.

Truth be told, I was deeply resentful, having wanted to report from the front line areas such as Kyushu. However, this was only until I had met with the spokesperson for the Royal Guard, who would accompany me. They unreservedly taught me of the troubling situation of the COSEAN forces on the continent.
"They are in the middle of reorganizing their forces, along with several forces in West Japan."

A Royal Guard facility, located in Kyoto, a city filled with humidity clinging to skin, like during an early summer's rainy season. It was here where this spokesperson heaved open her leaden mouth.
"Personally, I respect Lieutenant General Ayamine for prioritizing saving human lives during Operation Gwangju. But as a result of that, the front line fell into disarray, and many casualties were incurred. And so the current circumstances are as follows: Units from West Japan have been extracted to serve as reinforcements on the continent, and now, West Japan is struggling to fill the resulting gap."

The Nightmare at Tanabata Swarming in from the Continent Tsushima is Invaded Earlier Than Expected

The 7th of July, Tanabata... The strips of paper, upon which children had written 'Please protect Japan from the bad space monsters', were mercilessly trampled down, along with the bamboo leaves.
On this day, the BETA landed on Tsushima.

The spokesperson and I had been continuing our information gathering around Kyoto, and we intended to do so until the West Japan forces had finished reorganizing. However, we received this tragic news from the Royal Guard 2nd Regiment headquarters which shocked us both.

Even if the BETA were to reach the mainland via islands such as Tsushima or Iki Island, such an event should only occur after all forces in the Korean Peninsula had strategically withdrawn, with the knowledge that West Japan's defense structures had been organized.
However, this assumption that the Japanese forces would be ready was shattered, since the UN and COSEAN forces on the Korean Peninsula had most likely been utterly wiped out...
Not to mention the superlarge typhoon, which is said to be the largest ever observed, hitting West Japan and paralyzing all means of transportation.
"At this rate, it'll be impossible to properly transport forces and evacuate citizens...!"
said the spokesperson as she bit her lip.

The Elite of Our Valiant IJF, and Their Opposites, The Citizens of Isolated West Japan

The BETA invaded Tsushima... As expected, the honorable members of our IJF were the ones to recover quickly, in response to this news, which sent tremors down the Imperial mainland.
The IJN 6th Fleet, with battleship Izumo as its flagship, was dispatched from Maizuru, and braved the ocean that was rough from the effects of the typhoon.
They conducted naval bombardments in order to stop the BETA group from crossing the Genkai Sea.

The army also halted the BETA landings at Nagasaki and Saga. This good news, that they had slain an enemy on the scale of a division—it raised our spirits.
However, the typhoon was showing no signs of subsiding, and because of it, no progress had been made on the evacuations of citizens across West Japan.

Landslides had cut off many points along the major roads, and ships that lacked the displacement of a massive battleship were kept locked inside ports due to fears of capsizing.
Aircraft had been restricted not only by the rough weather, but also by the enemy known as the Laser-class BETA, which could appear at any time.
Under these conditions, where land, sea, and air transport had been cut off, the citizens were forced to evacuate on foot, while being exposed to the storm...

A BETA Ambush Splits the IJF
The Storm Rages On with No Light at the End of the Tunnel

Only a mere two days after we had all been excited by the victory at Nagasaki and Saga... A large BETA army landed on the Central Kyushu area, as well as the Sannin region.

In regards to the Sannin region, this meant that the Navy's defense of the Tsushima Strait had failed... In short, this meant that the Tsushima and Iki islands had fallen.
Furthermore, the BETA invasion of central Kyushu was a complete surprise attack, and the surface forces that had been deployed to the northern parts of the island had their escape routes cut off. Perhaps the BETA had lured our forces with their large group in the Genkai Sea, while invading deep underground with a different group.

Either way, what could anyone have done in response to this situation?
Especially with that typhoon still raging on in West Japan...

It was 700 years ago when the Chinese-Mongol forces attacked Kyushu and Hakata, and it was later said that their fleets were destroyed by a storm named 'Kamikaze'. However, the massive storm currently rolling through West Japan is only helping the BETA, and it is a calamity that is getting in the way of the military's actions and the evacuation of civilians.

The Defenses Are Hurriedly Laid Out
Danger Closes in on the Imperial Capital

The 11th of July... Under increasingly pressing conditions, the spokesperson and I continue to gather information, after travelling to Oosaka.
We had planned to report on the First Imperial Capital Defense Line, which had been established from Himeji, and which split the Chugoku and Kinki regions.

"I've been informed that the forces in Kyushu are still in high spirits.
They are still filled with the will to fight, and all are bravely continuing to oppose the BETA..."
The expression of the spokesperson informing me of this news was by no means cheery.
Thoughts of her allied personnel, isolated and awaiting annihilation. Thoughts of the civilians that had not yet been evacuated. Thoughts of the future of our country, now threatened by the unprecedented danger of the BETA landing.
The worry over such baseless fears shown on her face was nothing that would have been expected of a warrior, but considering that she was first and foremost a human, it left a positive impression on me.

But in a situation where a desperate defense of the Imperial Capital was being called upon, and where a defense line abandoning half of Chugoku was being constructed, who could believe such baseless rhetoric?
As a writer, I can't say that I wasn't wishing for a victory like that at Nagasaki and Saga to happen just once more...

The Unfortunate West Japanese Army
The Ruined Imperial Capital Defense Plan

Our fears had become fact.

12th of July, the day after I reached Osaka...
The BETA vanguard already reached the first Imperial Capital defense line. By the following day, the 13th, they had already begun baring their fangs towards even Kobe.
The reason why the defense line had been broken so easily was none other than due to our military being unable to prepare an adequate defense setup, after having been routed from the continent, and due to the typhoon, while the BETA only ramped up their invasion speed after reaching Tsushima.
It can be said that, in the current circumstances, in the time it would take to transport a single TSF, one hundred BETA would have closed in.

It was at Dotonbori, faced with the sight of refugees shoving one another to be evacuated, that the spokesperson stiffly told me that we also ought to return to the Imperial Capital.

Kobe, only a stone's throw away, had become a battlefield. While that was certainly dangerous, it was also a unique chance to gather news material. Against my hesitation, with the look of a soldier, faithful to their orders, the spokesperson said to me, "If I let you die here, I will have failed my mission."

Steady Preparations for the Defense of the Imperial Capital
Collective Thoughts as the Flames of War Approached

In the end, I left Kobe and Osaka, which were on the verge of becoming battlefields, and returned to Kyoto, as requested by the spokesperson.
It had only been in the several days I was away from Kyoto that the thousand-year capital had drastically changed.
The Royal Guard 2nd Regiment and the Imperial Capital Defense 1st Division were commencing their full-scale preparations of positions and deployments, in order to fulfil their duty of defending the Imperial Capital.
TSFs were being carried to a temporary base, which had been constructed in the mountains, and Type 90 tanks and MLRS, which were for support, were heading west down the highway, one after the other.
In exchange, the civilians formed a row and headed east... to evacuate to Chubu, Toukai, and Kanto.
With a lack of goods, and with long-standing restrictions on travel with private automobiles, many citizens were forced to flee on foot. Everyone's gloom, eyes drawn to the ground, were most likely a result of their exhaustion, and the fear of the impending situation where even the Imperial Capital was on the verge of being dragged into the war.
I couldn't help but shed tears, seeing a single elderly person try to get back into the city exclaiming, "I'll become ashes with the Imperial Capital!".

Give an Inch to Get a Mile
The IJF Finally Makes a Difficult Decision

While the final defense line was hurriedly being constructed, a limited counter-offensive had been waged in the Osaka region... When this information came in, the spokesperson's expression stiffened.
Having been moving together 24 hours a day for the past few days, I had come to be able to read her expression, and so I asked whether she had any apprehensions.
"...One of the reasons why they couldn't conduct a counter-offensive until now was due to a lack of firepower."
Fire support from the air and sea... She was saying that if there had been bombardments from TSFs and aircraft, as well as naval fire from the coasts, the ground forces should have been able to put up more of a fight.
Then why had this not been conducted until now?
To this obvious question, the spokesperson responded with utmost bitterness.
"There were fears of citizens getting caught up in it."
And now, this tactic would finally be put into use.

How did you find it?

The reporter started off by accompanying the Royal Guard rear end support forces, with the goal of gathering material about the initial defense setup of West Japan. But as the combat situation there deteriorated, he finally came to bear witness to the BETA on the front line of the defense of Kyoto.

What has been recorded here is only a portion of excerpts from this notebook, and we are unable to report on the entirety of its contents. However, we believe that from this, it is possible to understand a part of what was happening on the front lines of the retreat from West Japan and the defense of Kyoto, as well as the thoughts of those fighting on the front lines.

The extent to which the accounts of the notebook are factual remains unclear.
In the future, we would like to deliver more detailed information, along with the results of our own inquiries.

The Flames Close in on the Imperial Capital, the Symbol of Japan, and the Countless Lives and Dreams That Were Lost

The last day of July... The counter-offensive in the Osaka region did not amount to anything, and the BETA had finally reached the Imperial Capital's final defense line. The various forces were deploying all the combat capabilities they had to support the front, but even so, requests for support would endlessly flow in, even to the field command post I was assigned to. The spokesperson had negotiated for us to enter this place, from which I could easily and conveniently grasp the combat situation.

Lake Biwa was on the outskirts of the Imperial Capital, and IJN naval vessels were deployed there via the canals. Furthermore, I heard that there were considerations being made into allowing US Military aircraft carriers to enter and moor.
Although this was all being conducted to provide close-quarters support for the Imperial Capital Defense Forces, are they really going to perform a repeat of Osaka, and attack the Imperial Capital on a scale which would reduce it to ashes? As someone who grew up in this city, I couldn't help but worry endlessly over it.

Furthermore, on the same day, the IJF in the Kyushu region had honorably perished. As I encountered this news, I recalled a young girl, a Surface Pilot cadet, that I had interviewed before. She, who proudly said that her lover had been dispatched to the front line in Kyushu—I wondered what that girl was doing now.

Despite Brave Fighting, The Imperial Capital Vanishes into Flames

Ten days after the final defense line entered combat... Several parts of the front had been torn through, and Kyoto was being eaten away at by the BETA. Flames burning all over the city could be seen even from this field command post in the Kyoto Tower Observatory.
However, half of those had been lit by us humans.

There are TSFs from the US Military that are regularly flying into the city for bombardments. A Shiranui, dragging a damaged craft along, fires its gun. A Zuikaku is destroyed while withdrawing.

"You have nerves of steel, don't you," said the spokesperson beside me, as she smiled, even under these circumstances. She might have been shocked, thinking it was insane for a civilian to remain in the center of Kyoto, which had now become the center of the battlefield, even though everyone else had evacuated.

Even the government had announced a transfer of the capital a moment ago.
They formally admitted that they would abandon Kyoto. However, I did not want to run away anymore.
I wanted to see what the calamity known as 'BETA' was like, and for this to be burned into my eyes.

The Brave Fighting Ends in Vain and The Day of Full Scale Withdrawal Finally Comes; Farewell, Imperial Capital, Until I Can One Day Return

I had heard that the Emperor and the Five Regent Houses had sought to remain, even though the Imperial Capital had been abandoned... But in the end, they were forced to evacuate. On the 15th of August, I was picked up by a vehicle from the Royal Guard 2nd Regiment, which had been fighting hard in the city to the very end, and I too would end up leaving Kyoto.

What I saw with the Royal Guards as we withdrew was the main road, strewn with corpses of BETA and wreckages of TSFs, and the five-story pagoda and Nishi Honganji, burned down and collapsed. I have also heard that the BETA blew away Kinkaku and Kiyomizu temples without a trace, from their very foundations.

Perhaps we thought of the BETA threat as being someone else's problem, until it reached our own doorstep.
Even as our fellow countrymen died overseas, fighting the BETA, we had a baseless conviction that Japan would remain safe. Had we desperately clung to this false hope? Had we not been complacent in preparing for the BETA invasion of Japan?

That spokesperson is no longer with me.
She fell victim to the BETA while we were escaping from Kyoto station, risking her life to save mine.
In order to repay our debts to people like her, we must make use of the lessons learned.

muv-luv alternative TOTAL ECLIPSE
Windows Version Release Anniversary Special

● 'View the World with Illustrations' Series ●

MONOCHROME ULTRA BETA Pictorial

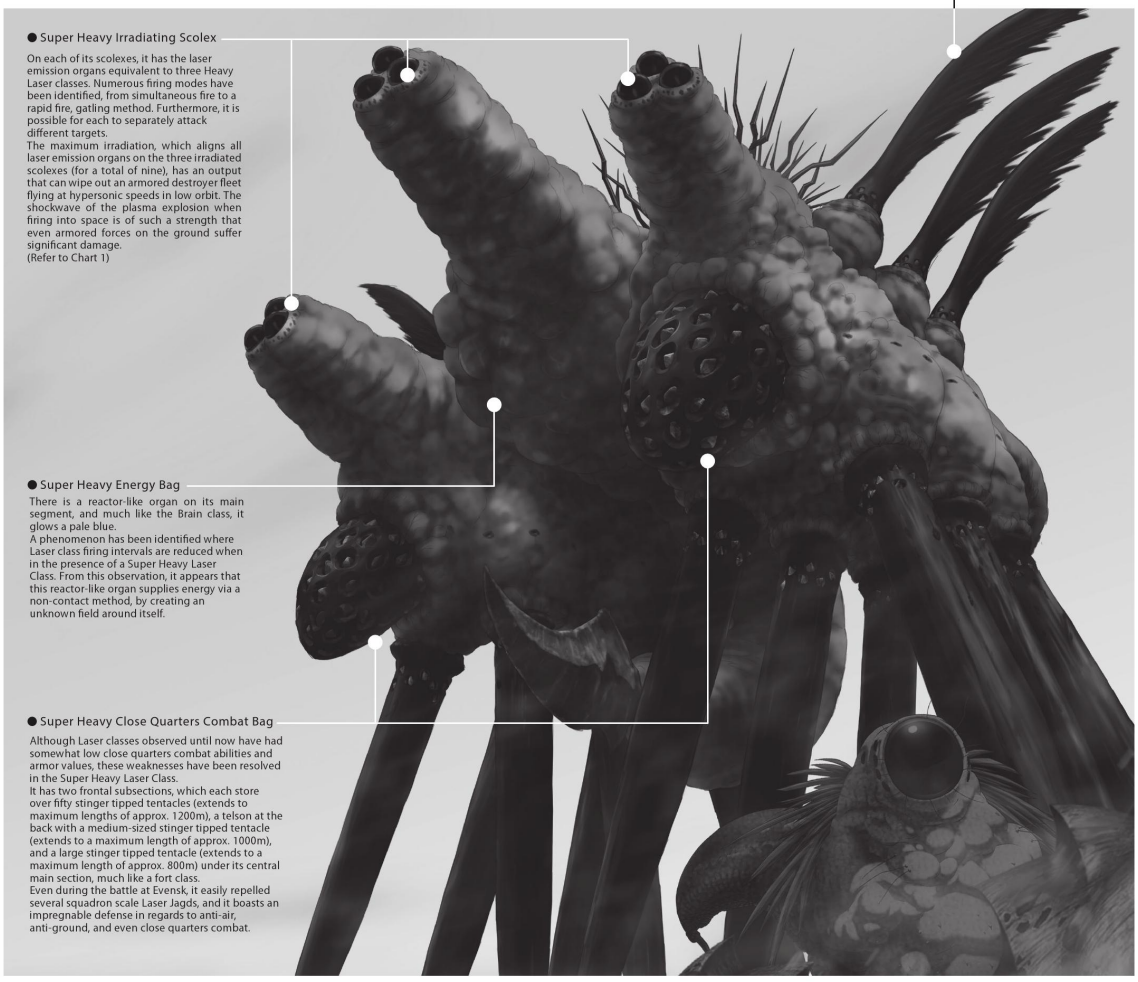
Dow Hiragane

The Latest Information!! The Secret of the Super Heavy Laser Class

Since the vixen bitch from Yokohama analyzed the newest BETA strain data brought back by Yuuya and Inia, I went and snatched it right away★! Anyway, it looks like those damn BETA had one hell of a hidden trick up their sleeves. It's an absurd monster that's like a Fort and a Heavy Laser class fused together, then multiplied by six. If this guy ends up being mass produced, mankind's in serious trouble!!
H-help~~!!

● Super Heavy Heat-Dissipation Wings

It is thought that the heat energy created when firing a laser is enormous, and that the Super Heavy Laser class cools itself with three pairs of massive heat-dissipating wings, much like other Laser classes. The updraft caused by the released heat from a super large Laser class was strong enough to create a super large cumulonimbus cloud, even over Evensk during a harsh winter. Furthermore, this cloud drew in heavy metal clouds, which are mankind's anti-laser tools, and could take advantage of them by having them interfere with communications.



● Super Heavy Irradiating Scolex

On each of its scolexes, it has the laser emission organs equivalent to three Heavy Laser classes. Numerous firing modes have been identified, from simultaneous fire to a rapid fire, gatling method. Furthermore, it is possible for each to separately attack different targets.
The maximum irradiation, which aligns all laser emission organs on the three irradiated scolexes (for a total of nine), has an output that can wipe out an armored destroyer fleet flying at hypersonic speeds in low orbit. The shockwave of the plasma explosion when firing into space is of such a strength that even armored forces on the ground suffer significant damage.
(Refer to Chart 1)

● Super Heavy Energy Bag

There is a reactor-like organ on its main segment, and much like the Brain class, it glows a pale blue.
A phenomenon has been identified where Laser class firing intervals are reduced when in the presence of a Super Heavy Laser Class. From this observation, it appears that this reactor-like organ supplies energy via a non-contact method, by creating an unknown field around itself.

● Super Heavy Close Quarters Combat Bag

Although Laser classes observed until now have had somewhat low close quarters combat abilities and armor values, these weaknesses have been resolved in the Super Heavy Laser Class.
It has two frontal subsections, which each store over fifty stinger tipped tentacles (extends to maximum lengths of approx. 1200m), a telson at the back with a medium-sized stinger tipped tentacle (extends to a maximum length of approx. 1000m), and a large stinger tipped tentacle (extends to a maximum length of approx. 800m) under its central main section, much like a fort class.
Even during the battle at Evensk, it easily repelled several squadron scale Laser Jagds, and it boasts an impregnable defense in regards to anti-air, anti-ground, and even close quarters combat.

((I also secretly gained this information!!))

It's probably a Super Heavy Laser Class study by that vixen bitch at Yokohama.

I, Dow Hiragane, who is never truly in the wrong, got my hands on the study memos of that bitch! Oh, and the omitted letters were like that from the start, so cut me some slack.

● Excerpts from memos thought to be Kouzuki Yuuko's

- The shape and tissue samples of the Super Heavy Laser class don't correspond to any of the unidentified strain corpse samples recovered from the lunar surface, or from any of the fronts.
- From the functions and shape of its parts, it is speculated to be a new strain created by fusing a Fort class, Heavy Laser class, and Brain class.
- It is assumed that the reason why Laser classes were absent in the proximity of the Evensk Hive is because the hive was producing a Super Heavy Laser Class. This can be thought of being ●● since ●●●●●●●● has also been ●●●●●.
- Even in combat zones other than the one mentioned above, a low frequency of Laser classes indicates a high possibility of a new strain of the same kind being created, so caution is required.
- If another of this strain had emerged anywhere in the northern hemisphere during the final stages of Operation Cherry Blossom, the capturing of the Original Hive would have completely failed.
- The form and tactics of the Super Heavy Laser class are clearly countermeasures against mankind's anti-BETA weapons and tactics. It is likely that mankind's ●● which was ●●● from ●●●●●●, or the railgun test fire in Kamchatka, and the recovery of part of its wreckage have influenced it.

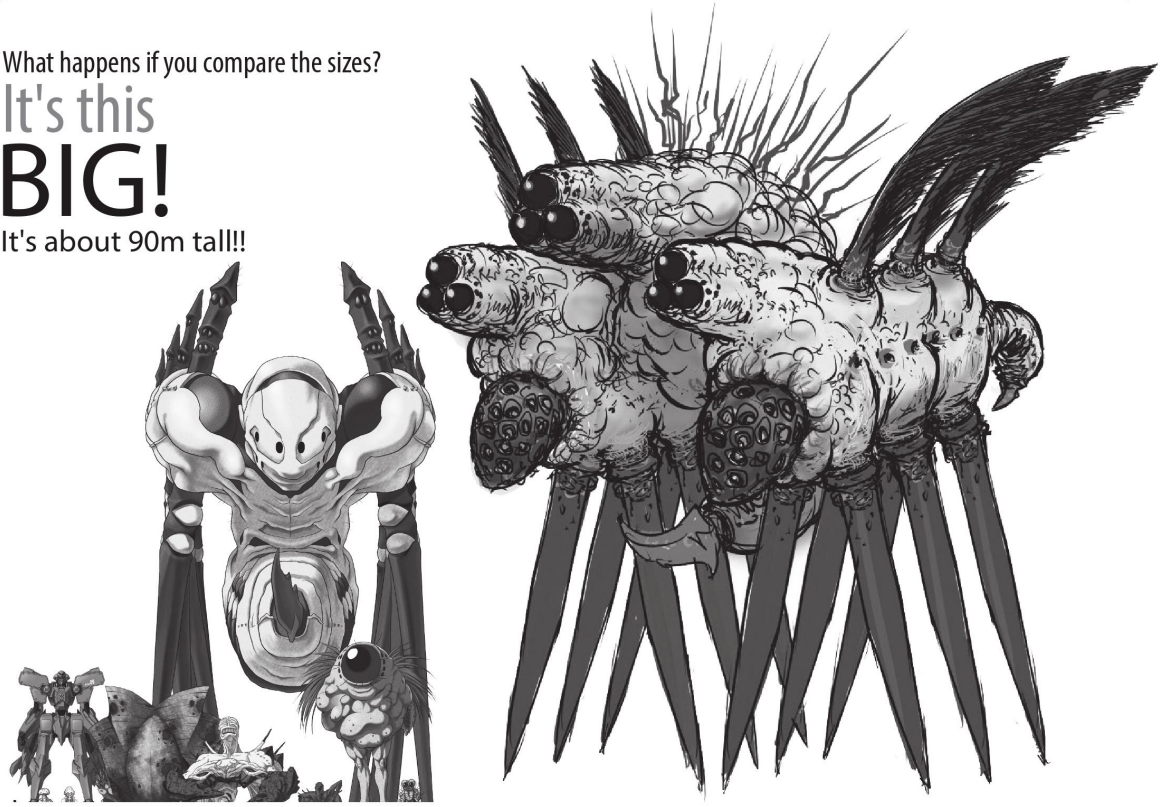
[Chart 1] Confirmed Firing Data

Firing Pattern	Laser Emission Organs	Interval	Output	Diameter of Irradiation
Gatling-like irradiation from a single scolex	3	0.2 seconds	On the level of a Heavy Laser class	On the level of a Heavy Laser class
Simultaneous irradiation from a single scolex	3	Slightly over 4 minutes	3x Heavy Laser class	Approx. 2x that of Heavy Laser Class
Simultaneous irradiation from two scolexes	3x2	Slightly over 7 minutes	Approx. 8x that of Heavy Laser class	Approx. 4x that of Heavy Laser Class
Simultaneous irradiation from all three scolexes	3x3	Slightly over 10 minutes	Over 10x that of Heavy Laser class	Approx. 6x that of Heavy Laser Class

What happens if you compare the sizes?

It's this BIG!

It's about 90m tall!!





~The world of "Duty -Lost Arcadia"~

The year 2000—seven years have already passed since the fall of Europe in its entirety. Knights from the nations in ruin have put their lives on the line to retake their homeland, which has been trampled by the BETA.
The West German Army 44th Tactical Armored Battalion "Cerberus", from the UN Atlantic Ocean 1st Army, Dover Base Group—in this Rapid Response Deployment Force, which bears the name of the guardian of the gates of Hell, serve Surface Pilots with lineages from old, East Prussian, land-owning, aristocratic families.
The UN Forces orders reckless operations—heavy metal clouds and depleted uranium rounds contaminate the land which ought to be reclaimed. With the European Front starting to show its cracks, what do three beautiful maidens seek to gain from the situation?
"They're still fighting! There's no way I can give up!"

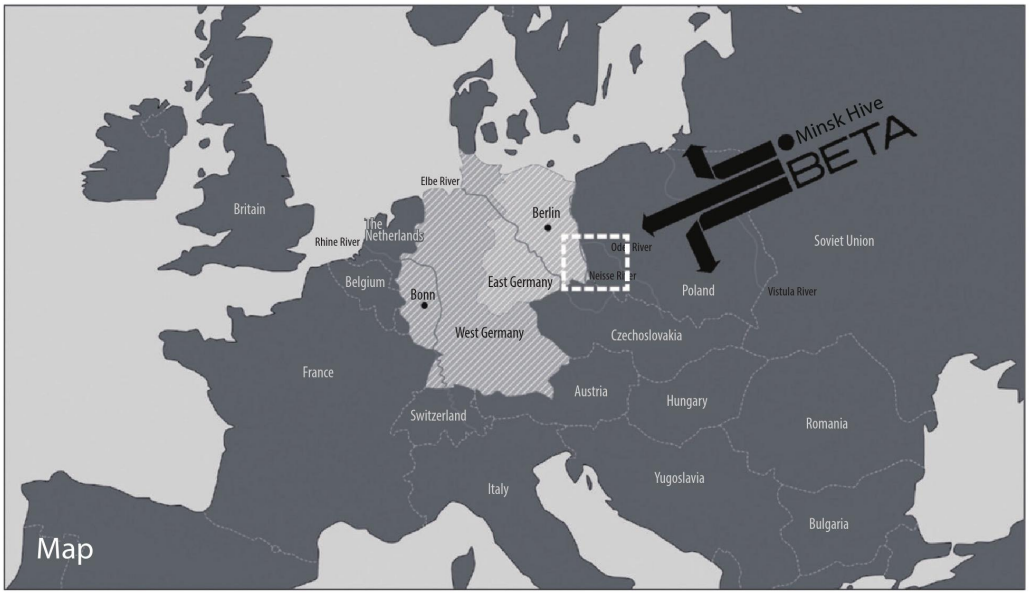
■ Kycow's Comment

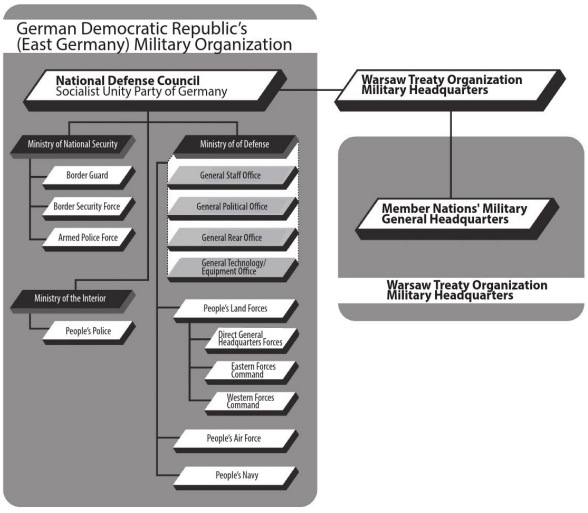
Right now, it's still at a stage where the goal is to introduce the setting and characters, but an outline of the story has been completed, and it's planned to get involved with things like TE, Alt, and SM. I think that I'll eventually be depicting the girls' lives, so thanks in advance for your support!



~The World of "Schwarzesmarken"~

1978 saw the failure of Operation Palaiologos, which had sought to capture the Minsk Hive. The invasion of the BETA did not stop, and several countries in Eastern Europe were pushed to the brink of destruction.
—And then in 1983...
The People's National Army (East German Army) 666th Tactical Armored Squadron continued to maintain resistance even under hopeless circumstances. In this squadron was 2nd Lieutenant Theodor Eberbach. Even while under surveillance by the German Socialist Unity Party, he repeatedly engaged in bloody slaughters that had the survival of his people on the line.





▲ East Germany's Military Organizations

East Germany is ruled by the Socialist Unity Party under a one-party dictatorship. Because of this, East Germany's military strength is subject to political intervention. In the nation, decisions are more often made with political considerations than military ones. The People's National Army (also known as the East German Army) is the largest military power of East Germany.
The political headquarters hold utmost authority in regards to military organizations, and political commissars are dispatched to each unit, for political guidance and surveillance, with the purpose of having the party's intentions reflected in military operations. Since the commencement of the Great BETA War, the Ministry for State Security (also known as Stasi) has risen as a power to rival the People's National Army.
Stasi is a secret police agency tasked with espionage, but have expanded to absorb the Border Guard, previously under the Ministry of Internal Affairs. On top of this, Stasi has formed its own independent armed organization, the Armed Police Force, under the guise of needing a force to regulate the refugees flowing into East Germany. Stasi are constantly expanding their authority.
The People's National Army and Stasi are in a conflict of their own, since they fight over equipment, budget, and military authority, and it cannot be said that relations between the two groups are amicable.
Furthermore, Stasi has planted many spies into the People's National Army, and is observing their movements. However, this has created another point of contention, since these actions overlap with the role of the political commissars from the military's political headquarters.

Rie-nee's Precious Image Dump ★

The legendary salvager 'Dow Hiragane', has managed to excavate many concept draft that were on the verge of being disposed of, from the bin of Koki Yoshimune. Today, Salvager★Rie-nee, the old yaoi fan who inherited his will, shall dig through the development team's computers without permission!

PART 1★Treasure Related to 'Chronicles 04'~~!

▼Dorado Squad Emblem, Sketches [Koki Yoshimune / Makishima Azusa]

Rie-nee: The grilled fish is the product of Yoshimune's corrections of Makishima's drafts A-D right!?

Yoshimune: I personally like Makishima's A and B since they have a surreal look.
Like a swordfish came flying just for the sake of it. [laughs]

Rie-Nee: They have a good posture. [laughs] It really looks like they're heading straight for the Earth!

Final Version



A



B



C



D



▼UN Space Force Command Emblem [Koki Yoshimune / Makishima Azusa]

Final Version



Rie-Nee: A-C Are Makishima's drafts for this too, right?

Yoshimune: I altered the colors of A's design and handed it back to him. However, 'SPACY' was a typo.
[Gestures wiping sweat off brow]

Rie-nee: Apparently Ma○ross stuck with that~ They're really gutsy to have done that!

A



B



C



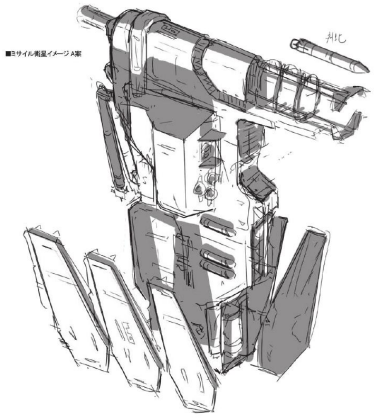
▼OSP-1400 Draft [Monkeychop]

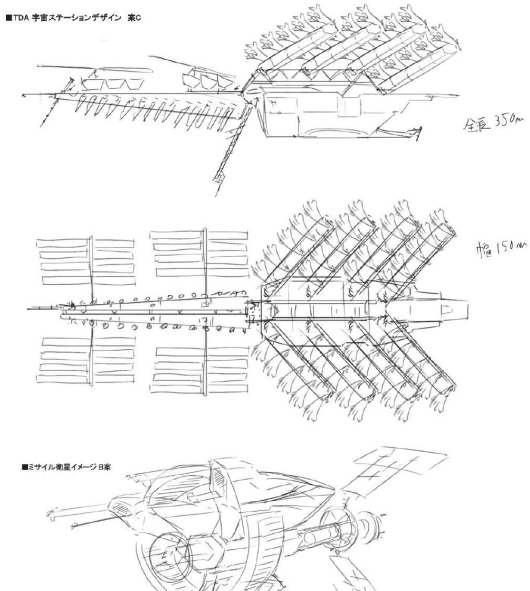
Rie-Nee: The OSP-1400 is an orbital dock at an altitude of 1400km, and is working to manage things such as HSSTs and satellites. It also clears debris!

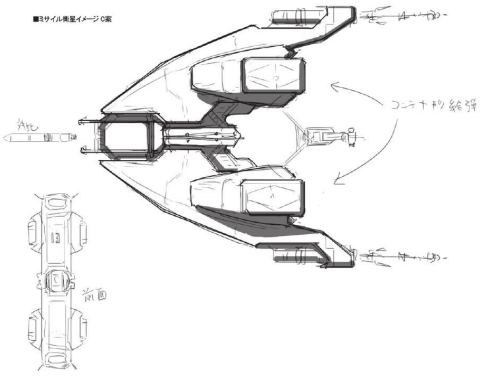
Yoshimune: Why are you saying that so proudly? You've only rattled off a 1:1 copy of its concept description.

Rie-nee: The OSP-1400 is an abbreviation of Orbital Space Port-1400. It also manages the nuclear projection satellites in ARTMISS!!

Yoshimune: You wouldn't be able to say that smoothly if this was a live broadcast on Nicovideo.

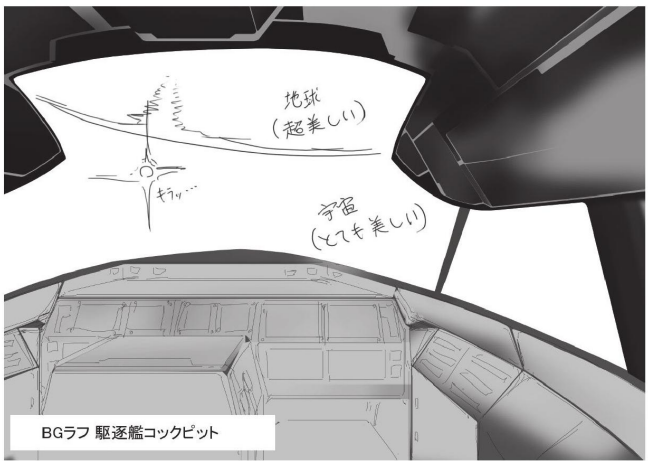








▼HSST Cockpit [Monkeychop]



◀ Draft of HSST Cockpit Background

Text in order of appearance in image to the left:

—Earth (Absolutely beautiful)

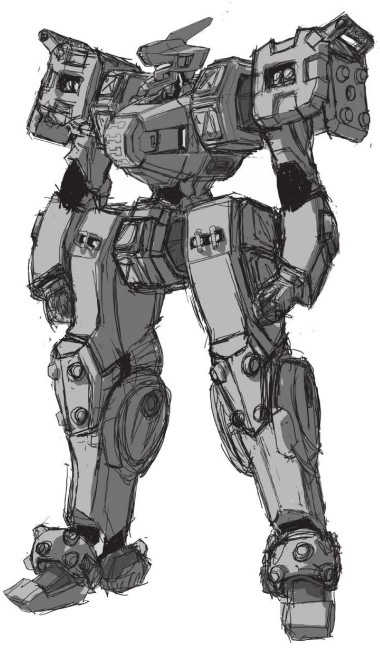
—*twinkling*

—Space (Very beautiful)

Rie-nee: Since we realized that it would be displayed for a long period of time, we increased the amount of detail in it by using space shuttle cockpits as references, to makesure that the players didn't get bored of seeing it.

Yoshimune: Why are you looking so worried? Monkeychop's the one who drew it.

PART2 ▼ Getter Machine's Mine!
The Deep-Bin Excavation Project!



Rie-nee: From here on is a general corner for things other than Chronicles 04 that I've scavenged and salvaged by rummaging through everyone's computers!!

Yoshimune: Don't go doing that without permission [laughs].

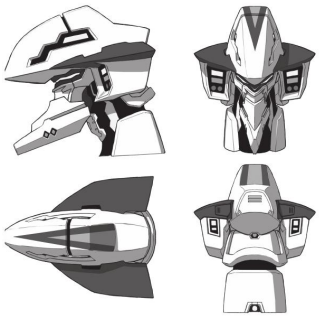
Rie-nee: This time too, we'll recycle, recycle★!

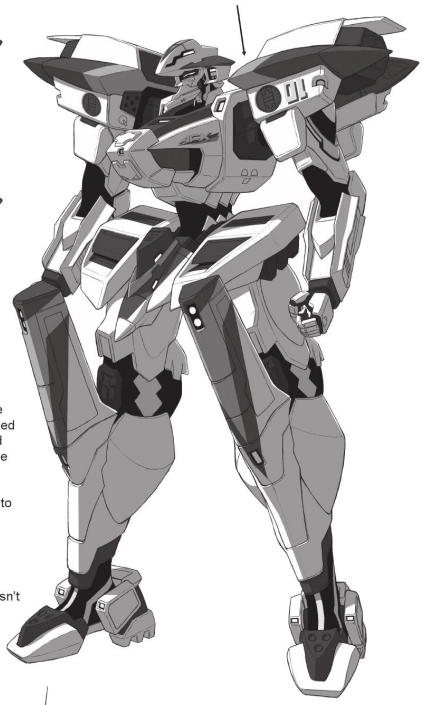
Yoshimune: Even if you say that like Misato, we're not letting you off the hook.

▼ F-5I Kfir Draft [Koki Yoshimune]

Yoshimune: This is Israel's F-5. I gave it the look of being independently remodeled, with an Israeli flair.

Rie-nee: It looks more like a tank than an aircraft.





▼ Project Prominence TSF Drafts [Koki Yoshimune]

■ Mirage 2000-5 Mk. II



Yoshimune: Here we have the Mirage 2000 Kai, which has been strengthened for mobile bombardment combat, and which fought Yifei in TE. We also have COSEAN's Super Hornet Kai.

The form of the head part is different to the normal Super Hornet.

This too, was omitted due to budget constraints.

Rie-nee: It's a tough world to live in, isn't it...



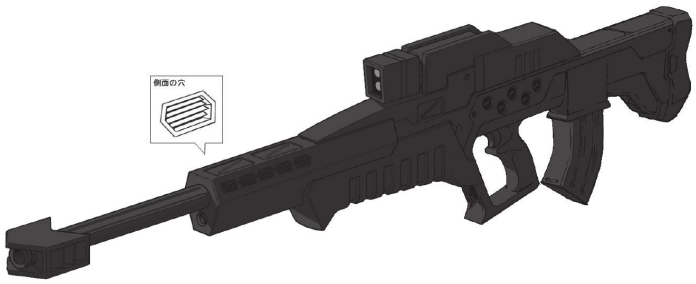
Yoshimune: This is the head part design for the Australian Defence Force's Super Hornet. It was designed for ROUGUN's comic being serialized in Dengeki Daiou.

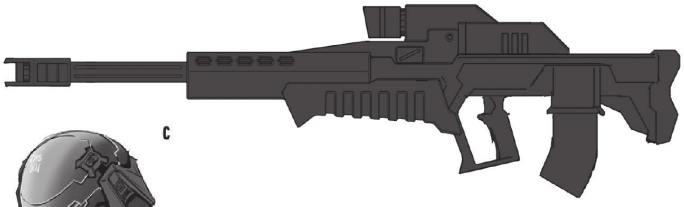
▼AMWS-21 Support Assault Cannon [Yoshimune]

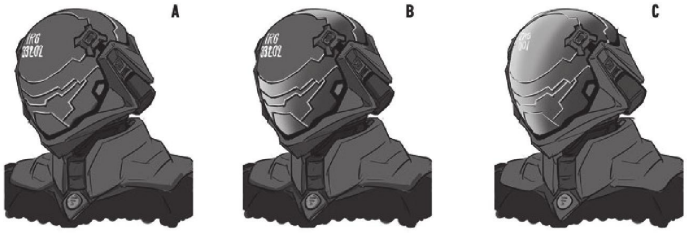
Yoshimune: This is an AMWS-21 with its 120mm smoothbore cannon module replaced with a long barrel module. It was expected to be used by people such as Sharon and Keith in TE. Other assault cannons, like the WS-16, can also be retrofitted into support assault cannons too. I designed it with Barrett's XM500 as the image source.

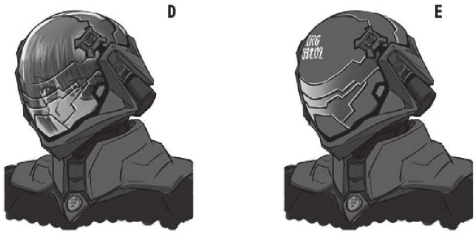
Rie-nee: It has a design, but it doesn't appear in the story?

Yoshimune: That was due to circumstances with budget and human resources. Though we were reluctant, we had to prioritize other materials. I cut it out, after comparing the potential benefits against the costs incurred, such as the labor to illustrate it and the added complexity of managing the standing illustrations, which are prone to having bugs.







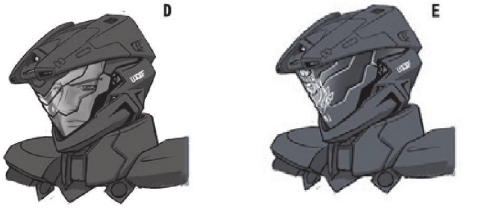


▼Type 77/Type 84 Helmet [Koki Yoshimune]

Yoshimune: When I illustrated the Type 77 Fortified Suit Helmet for the novel version of 'The Imperial Capital Burns', I took the opportunity to also create the Type 84. The Type 84 is a space force specification, with complete vacuum functions. Since a TSF's cockpit is completely airtight and pressurized, this helmet is worn under dangerous conditions, like with heavy metal clouds, and for extra-vehicular activity in low orbit. Well, since it covers up the face, I don't often have characters wear it.

Rie-nee: I guess that makes sense. [laughs]

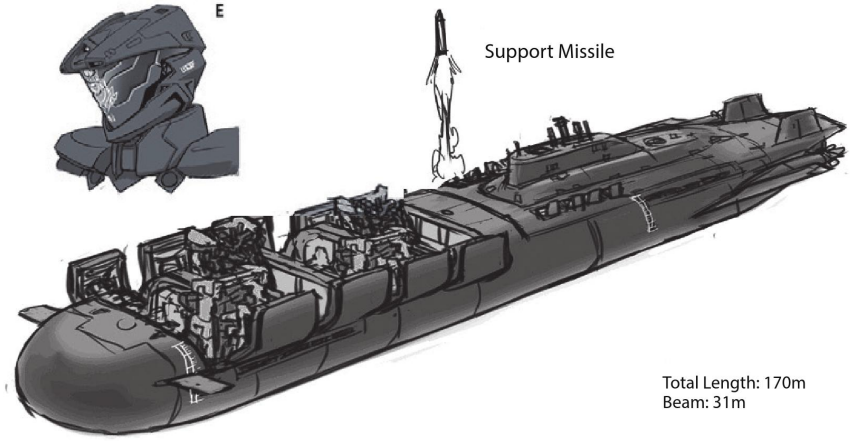




▼Nuclear-Powered Submarine Landing Vessel [Koki Yoshimune]

Yoshimune: This is the Typhoon-class TSF Submarine Landing Vessel, which is boarded by the people who were moving behind the scenes during the Guadeloupe Disaster Incident. It can load a single flight of TSFs for a total of four craft. It floats to the surface and is easily detected whenever it launches or receives TSFs, so it's not suited for anti-human combat.

Rie-nee: I see that the gantries rise up on alternating sides~



Total Length: 170m
Beam: 31m

▼ TE Emblems [Koki Yoshimune / Makishima Azusa]

Yoshimune: These are the unit emblems, which, like before, were cut due to the budget.

Rie-nee: A-E are Makishima's drafts and A is Yoshimune's corrected design.
Leon gives off the scent of weak prey!

Yoshimune: Be quiet and get away from there.



Final Version











Final Version

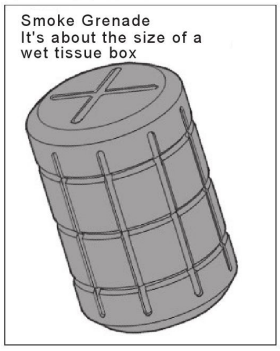


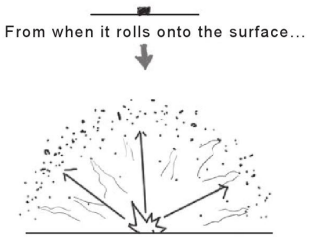
Ghost Squadron, the one Yuuya belonged to in the US Military.

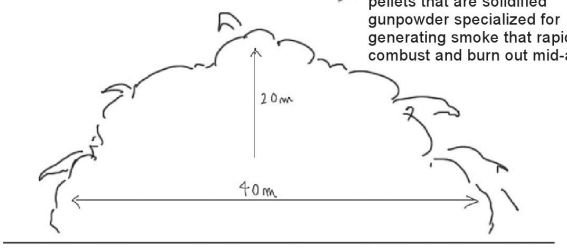
I made it different to the usual emblems, with a Halloween feel. But since the unit number's just a guide for the font and position, not much thought went into it. [laughs]

Rie-nee: It's cartoony~
Purple and black are the standard for goth punk girls~!

■TSF Armament Smoke Grenade







The submunitions generate smoke immediately after igniting, and in the 0.3 seconds or so between ignition and reaching this stage, a dome shaped smokescreen of approximately 40m in diameter is created.

▼ Smoke Grenade [Monkeychop]

Rie-nee: You even designed things like this~!?

Yoshimune: Well yes, since there's many scenes where smoke grenades are used. But there are quite a few instances where the design is rushed, or things are scrapped... [laughs dryly]



Tactical Surface Fighter Special Pinup

ILLUSTRATION : Masami Obari

"Chronicles 01" Emblem Collection

Military and unit emblems representing an individual's groups decorate both sleeves of their fortified suit and BDU. Even for Chronicles 01, ten new types of emblems and badges were illustrated. Although emblems only make small appearances in the game, it's the charm of someone born in Edo to take care in details... wait, that's not right, I mean it's the charm of Alt. So, with that out of the way, here is a collection of the new emblems!



▲ Raging Busters Unit Emblem

I tried basing it off Thor's hammer from Norse mythology. It's not a whack-a-mole hammer! (Makishima Azusa)



▲ Black Knives Unit Emblem

I accepted Kycow's invitation, which was something along the lines of, "Want to give it a shot?" Before I realized it, I ended up taking on the job of designing most of the emblems that appear in Chronicles! (Makishima Azusa)



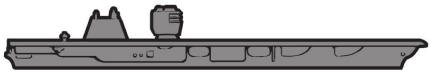
▲ Marine Expeditionary Force Unit Emblem

I based it on the real life emblem, and designed it while trying not to deviate too far from the original. (Makishima Azusa)



▲ Bloody Nightmare Unit Emblem

This was well-received by Wei Luxin. It's based on an image of a black horse in a dark night, so like a nightmare. It's fun to draw animals. (Makishima Azusa)



▲ JFK Badge

I stylized the concept art which Fujirou gave me. Since the JFK has an island on its rear for resupplying TSFs, it gives off a different impression to real aircraft carriers, doesn't it? (Makishima Azusa)



▲ Mainland Defense Force Emblem

The Mainland Defense Force emblem is fitted on Marimo's right shoulder. This emblem was designed by Koki Yoshimune.



▲ La Falange di Pirro Unit Emblem

This is group under Captain Raphael Benigni, which makes an appearance in 'Rain Dancers'. It is the 521st Tactical Armored Battalion of the Italian Navy contingent in the UN. Since this is the Italian military, I tried to give them a different feel to the US military. In a sense, this emblem is the one which is most like a coat of arms. The symbol of a scorpion was inspired by the logo of Abarth, an Italian car manufacturer.



▲ Sydney Emblem

Since it's from the Australian Navy, I thought about this emblem's design from a different perspective to US ones. If the nation's different, the design changes too. I really feel that... (Makishima Azusa)



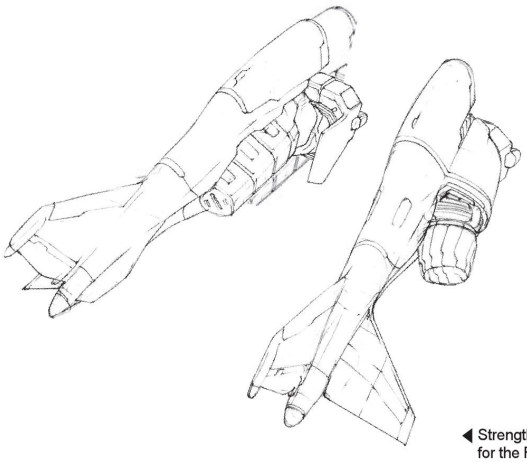
▲ Aquila Unit Emblem

Wouldn't it be fine just to leave it as Wei Luxin's fried chicken emblem? That's too ominous to consider~! And so I ended up designing this one. Since they both drop, I had a Steller's Sea Eagle clutch a meteor. (Makishima Azusa)



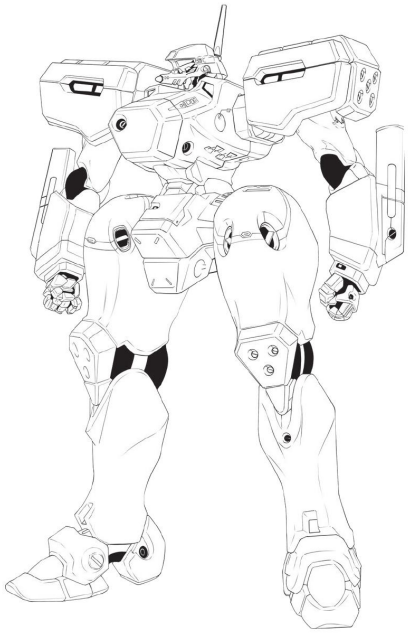
▲ Rain Dancers Unit Emblem

I did the original draft, and Koki Yoshimune applied the finishing touches. I had a smug look on my face when I first came up with the idea of stylizing the E and the F! It's really cool!! Since they're a development team in a corporation, their emblem gives a different impression to military ones. (Makishima Azusa)

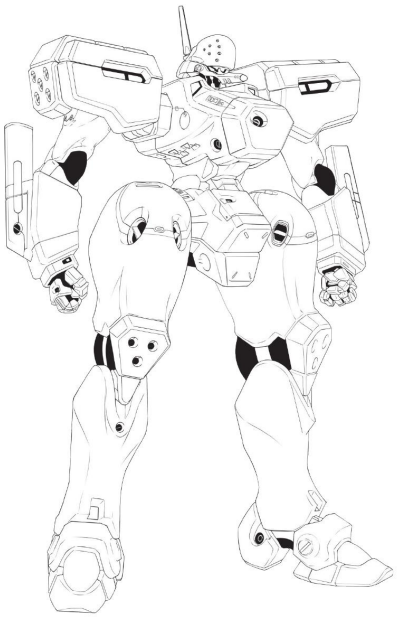


◀ Strengthened engines developed for the F-4J Kai were retrofitted.





▲ Soviet Union MiG-21 Balalaika



▲ People's Republic of China Jian-8

Imperial Japan: 1st-Generation Tactical Surface Fighter F-4J Gekishin

The F-4J Gekishin was the IJF specification craft of the F-4 Phantom and commenced combat deployment in 1977.

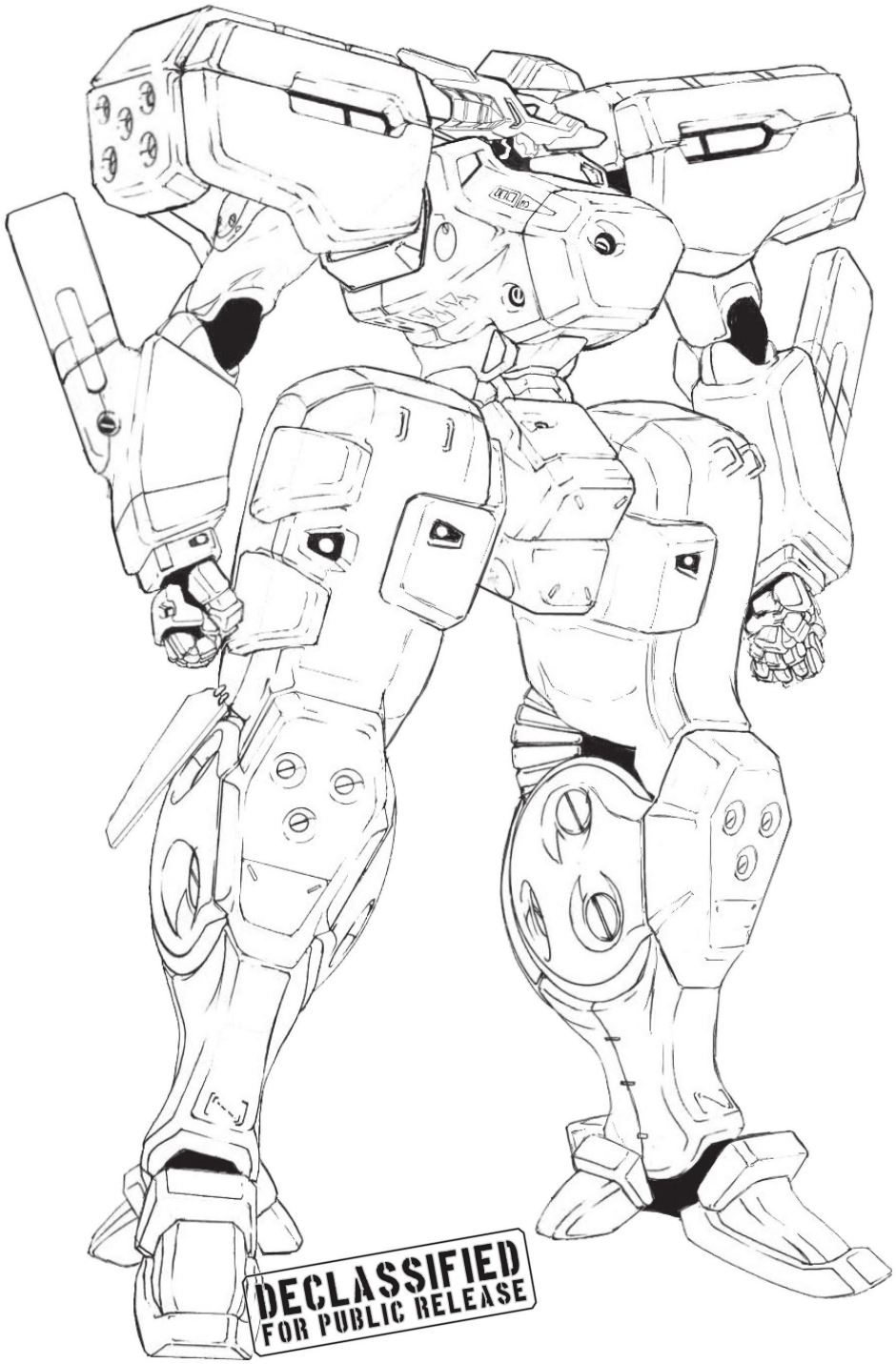
Because IJF specifications focused on having a melee blade and for close quarters dogfighting, its mount pylon system was expanded, and the craft's main arm joints and manipulators were strengthened.

Although several decades have passed since its initial deployment, refurbishments from the manufacturers allow it to maintain frontline capabilities (as of Block 214), though the IJF conducts further, independent improvements.

The latest production type demonstrated a performance comparable to the foreign F-4E. Furthermore, by implementing an independently developed laser attack warning device, which had been adopted onto the F-4J Kai Type 82 Zuikaku, as well as using low-weight composite armor and refitting its avionics, it has been reborn into a completely different craft from the original F-4.

Type77/F-4J Gekishin

Imperial Japan: 1st Generation Tactical Surface Fighter



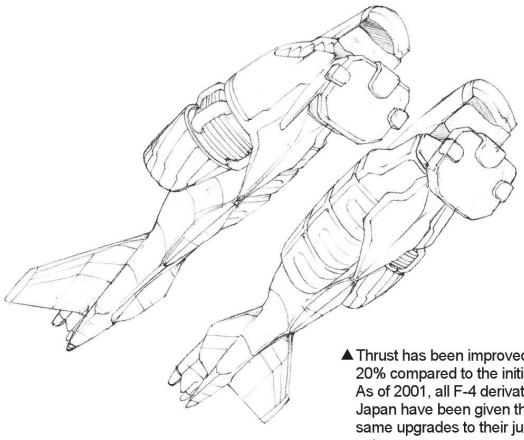
As of 2001, production has finished, and they have withdrawn from their position as the IJF's main frontal force, and are now primarily serving as base defenders. However, while the craft's end of service draws nearer, the difficulties in selecting a successor have raised the expectations that models with life-extending measures will continue to be used.

The craft that use the new OS 'XM3', as independently developed by Alternative 4's Weapons Development Agency, have been classified as Block 215, for convenience.

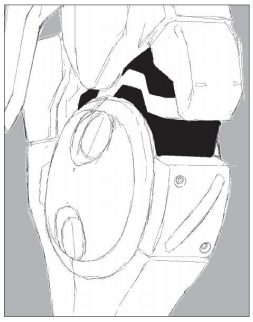
As of 2001, Mitsuhishi Heavy Industries prototyped a proof-of-concept craft, the F-4JX, which optimized the craft using XM3 to 3rd-generation specifications. This craft, which implemented OBL and had its avionics renewed, did not perform any worse than 2.5th-generation craft in internal tests.

These results were suggested to the Imperial Ministry of Defense as a proposal to tie into the next era of TSF development, which was facing some difficulties. However, this proposal was dropped in favor of conducting refurbishments of the same kind to the Type 89/F-15J Kagerou.

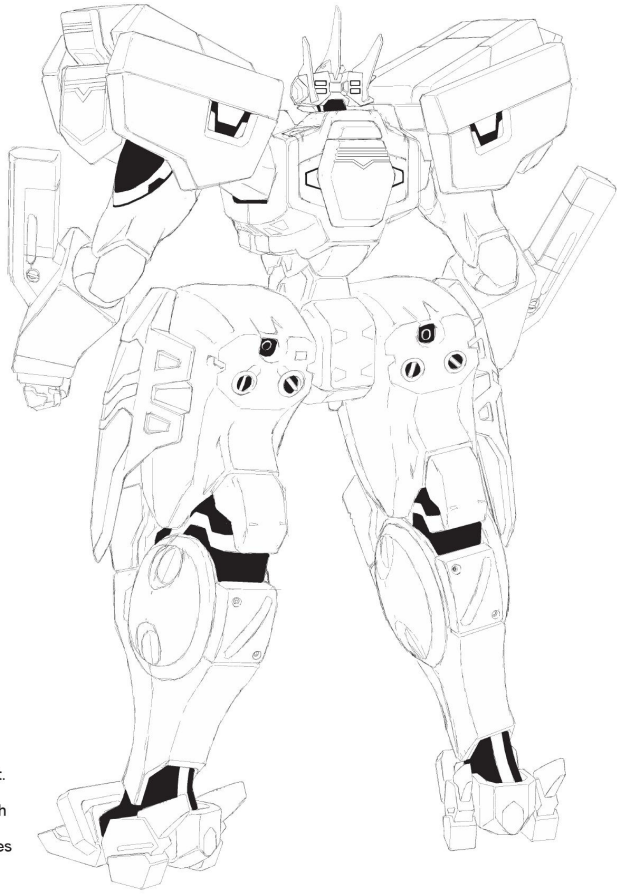
Several months later, the program was rebranded as the 'Super Phantom Program' and was proposed to countries across the globe using the F-4. With financial backing from the Foreign Ministry, it played a part in establishing the Empire's foreign influence.



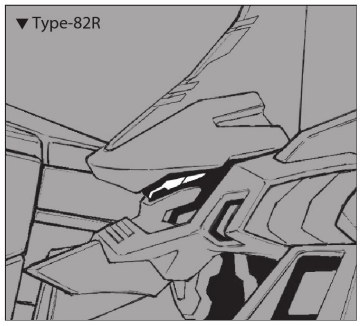
▲Thrust has been improved by 20% compared to the initial F-4J. As of 2001, all F-4 derivatives in Japan have been given the same upgrades to their jump units.



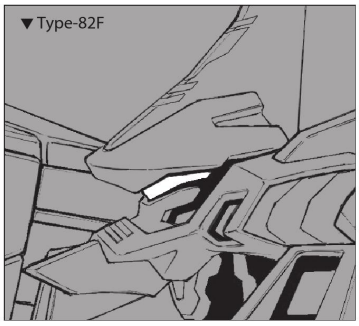
▲Though subtle, the redesign of the knee joints is a large point of improvement. The Gekishin's knee joint consists of a flexible, laminated, resin armor reinforced by armor structured like bellows, but the Zuikaku replaces both with a mobile, armored flap, which was common among 1.5th-generation craft. Many design changes were implemented to reduce the rate that the craft takes damage, such as developing new materials to significantly increase the toughness of the resin armor, and weight reductions to increase mobility and maneuverability.



▼Type-82R



▼Type-82F



▶Various sensors and communications functions have been improved, with consideration taken into the terrain and geography of Japan. The cover of the main sensor is different between the R type and the other types.

Imperial Japan: 1st-Generation Tactical Surface Fighter F-4J Kai Zuikaku

Based on the F-4J Gekishin, the F-4J Kai Zuikaku is a 1.5th-generation craft that has been significantly refurbished for exclusive use by the Imperial Japanese Royal Guard.

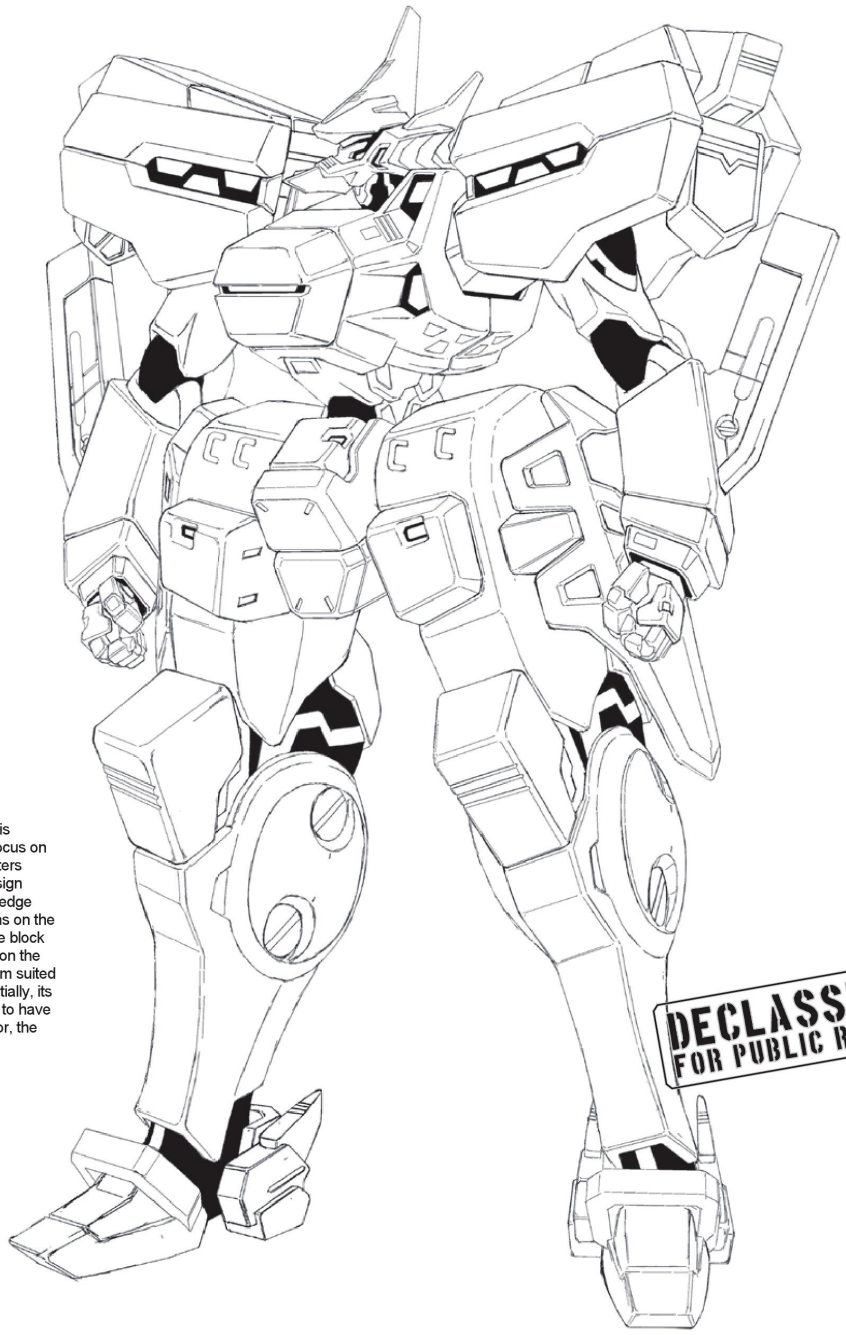
In 1978, the Shogunate ordered three companies, Mitsuhishi, Kawazaki, and Fugaku, to develop a craft exclusively for the Royal Guard, which was under their command. However, as the licensed production of the F-4J Gekishin had just commenced, it was impossible for Japan's military industry to meet the Shogunate's request of a purely domestic development alone, so the companies instead proposed refurbishments to the F-4J. The Shogunate reluctantly agreed to the F-4J refurbishment proposal, on the condition that the improved model would outperform the Gekishin in dogfighting.

The three companies thoroughly gathered and analyzed all of the data gained from the European front, including the lessons learned in combat by Surface Pilots. By reducing the weight of the armor and redesigning various modules, the total weight of the airframe was reduced by approximately 20%. They then collected refurbishment plans to improve maneuverability and mobility, as well as the laser attack warning sensors. Development commenced in 1979.

A trial using a test craft completed in 1981 identified a slight reduction in operational time from the increased engine output, but on the whole, it was a resounding success, and its mass production was approved. In the follow year,

Type 82/F-4J Kai Zuikaku

Imperial Japan: 1st Generation Tactical Surface Fighter



▶Each component is designed with a focus on dense close-quarters combat. Such design choices involve wedge shaped protrusions on the shoulder and knee block armor, as well as on the heels, making them suited for striking. Essentially, its form can be seen to have led to its successor, the Takemikazuchi.

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it was given the official designation of Type 82 and the nickname 'Zuikaku' and began to be distributed to the Royal Guard.

The experience and technology gained from developing the Zuikaku was reflected in plans to upgrade the Gekishin. This greatly contributed to raising the standard of the IJF combat capabilities and became the foundation for the next generation of TSF development.

In 2001, there were delays in preparing the Type 00 Takemikazuchi to become the new mainline successor. As a result, all Zuikakus belonging to the three Royal Guard regiments were given a net upgrade by being downgraded to F-4Js before being modified up to Block 214 specifications.

The Royal Guard craft have traditionally been painted in colors reflecting the origins of its Surface Pilot. This increase in visibility and identifiability on the battlefield also improves morale and increases the awareness of responsibility.

There are four variants, each of which have corresponding airframe colors.

Type-82R (Purple): A special craft only the Shogun is allowed to board.

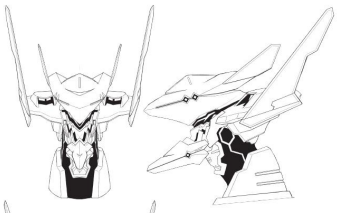
Type-82R (Blue): A special craft granted to those from the Five Regent Houses, or to relatives of the Shogun.

Type-82F (Red): A high output, high mobility specification craft granted to those from influential warrior houses closely associated with the Five Regent Houses.

Type-82F (Yellow): A high output, high mobility specification craft granted to those from the Fudai warrior houses.

Type-82A (White): A high mobility specification craft granted to those from warrior houses.

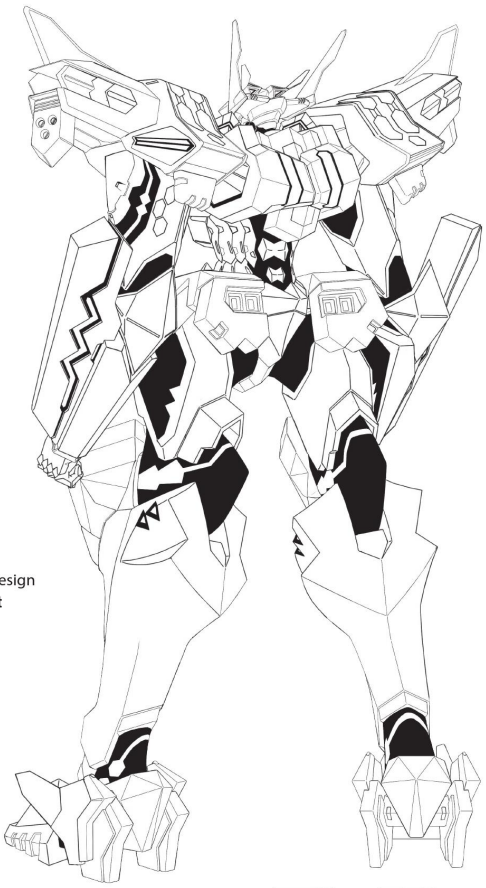
Type-82C (Black): A standard model, used by normal Surface Pilots in the Royal Guard.



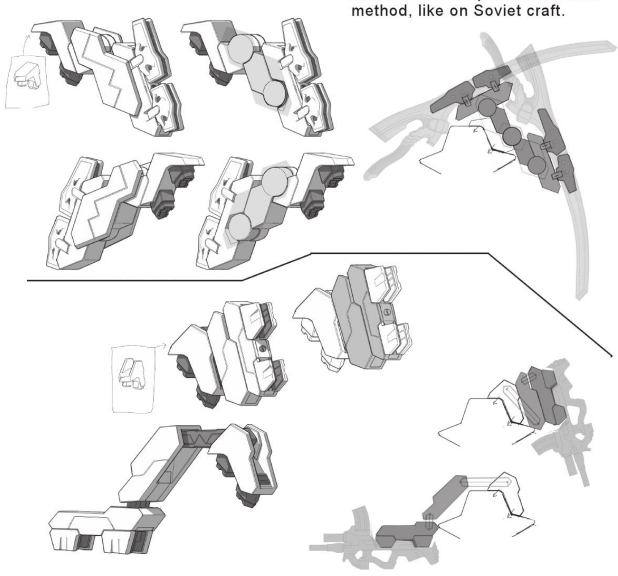


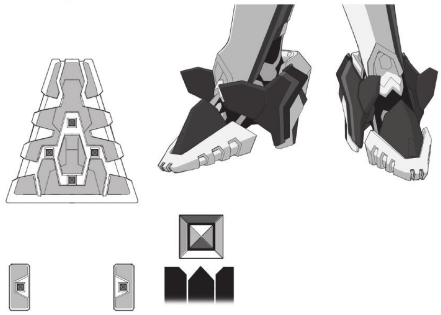


◀The characteristic form of the head module
While retaining some of the Shiranui's design, it has the same double-layered wing structure as the YF-23 or the F-22A Raptor, and is capable of powerful aerodynamic control.



▼The mount pylon, with a dedicated base design
Much like the melee blade, the assault cannon also adopts an overhead method, like on Soviet craft.





XFJ-01a Shiranui Second Phase3

Imperial Japan : 3rd Generation Tactical Surface Fighter



Furthermore, as rumors started to circulate that it had displayed active stealth abilities during mock combat, suspicions of a technological leak, and the possibility of it being a Japanese specification YF-23 were being seriously considered.

However, the form of the Phase 3 was mostly due to the designer's own personal theory, from having worked on the YF-23, as well as due to the XFJ Program's required specifications. It is clearly differentiated from the YF-23, which had been designed with integrated stealth abilities.

Stealth technology developed from the ATSF Program have been generally kept highly confidential. These include hacking (active stealth), which takes advantage of the globally standardized, US patented TSF OS and data link system. Other stealth concepts that have been kept at this level of confidentiality are their operational techniques regarding active stealth, their special armor material and coating, as well as their infrared leak prevention technology. However, passive stealth concepts, such as the form of its airframe, or the radar deception technology have not been kept as confidential as the aforementioned concepts.

As ten years had passed since the ATSF Program, and the F-22 Raptor is deployed and publicly visible, the confidentiality of the craft's stealthy form has been rendered obsolete. Its sharp form is instead serving as the characteristic aerodynamic control and edge armor of Japanese craft.

Finally, since the Phase 3 had only been completed with Boening's financial support, there is nothing out of the ordinary about cost reductions being made by reappropriating obsolete designs, instead of developing new modules for a prototype craft, which will inevitably be changed by the time it reaches mass production.

In reality, the similarity in form was openly expressed in locations under UN jurisdiction, and since there were no resulting diplomatic problems between the US and Japan, the rumors were left unsubstantiated.

These rumors had been mostly propped up by the distressed American TSF industry, which was feeling pressured by the decline in domestic TSF demand and by the rise of foreign TSFs in the international market. Also playing a role was Boening's rather careless corporate image, in the form of their survival strategies, such as with the Phoenix Initiative.

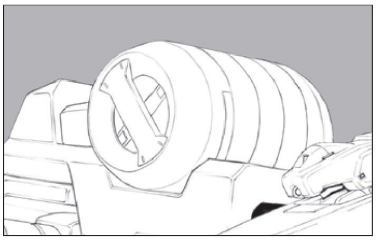
■Deployment

The Shiranui Second Phase 3 has no plans for formal adoption in the IJF since its primary purpose was to restrict the presence of the Soviet manufacturers in the TSF market.

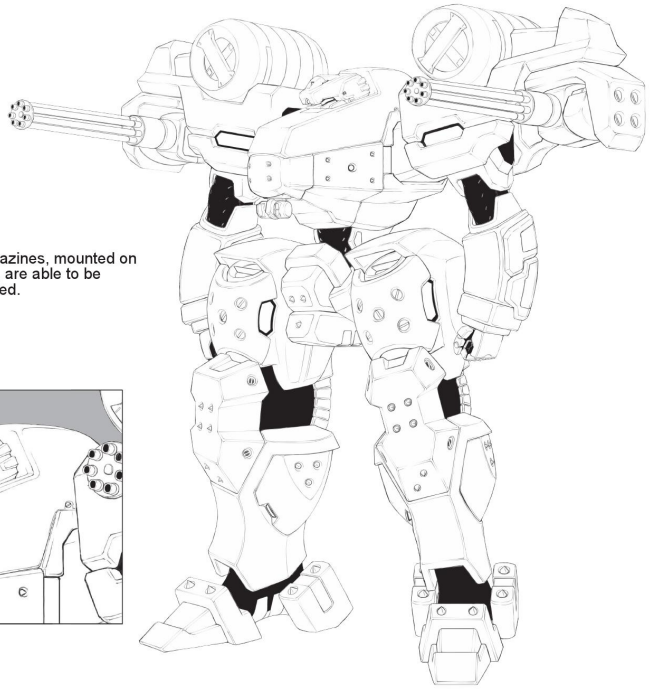
The Phase 2's initial specifications were sufficient to replace the Type 77, and if the Phase 3 were to replace anything, it would likely be the mainline craft, the Type 94 Shiranui. Such a plan to replace the Type 94 has already gained traction, due to Lieutenant Colonel Iwaya, the director of the XFJ Program.

If it were to be formally adopted, there is no doubt that a full-scale mass production of the demonstrator craft would commence, with some elements of this craft, such as its armor, being redesigned to better match the IJF's specifications and budget.

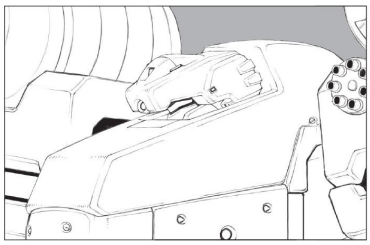
Lieutenant Colonel Iwaya proposed that if the Phase 3 were to be formally adopted, its nickname should be 'Kyokkou', meaning 'Aurora'.

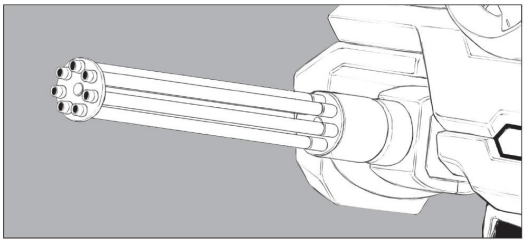


◀The large magazines, mounted on each shoulder, are able to be forcefully ejected.



▶An armored container that also holds additional magazines and drop tanks, which are equipped depending on the mission. During close-quarters combat, they protect the control block on the craft's chest, as well as its head module. They can be forcefully jettisoned during emergency escapes.



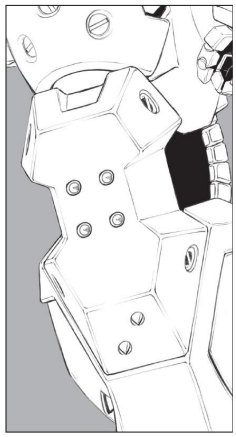


▲GAU-8 Avenger

A 36mm gatling motor cannon made by General Electronics. The base of the weapon rotates using the shoulder armor block as an axis, while the weapon itself rotates on a horizontal axis. This allows the weapon to fire across a wide range of angles, such as directly behind and below. The shells are caseless, and the bandolier passes through the interior of the shoulder block armor.

▶ CIDS-Mk1 Javelin

A close-quarters protection system developed by General Electronics. It removes and destroys Tank classes that have latched onto the craft by launching long spikes at high speed, using explosions. The long spike is immediately pulled back and can be fired rapidly.



United States: 1st-Generation Tactical Surface Attacker
A-10 Thunderbolt II

The A-10 Thunderbolt II is a TSA developed by American manufacturer Firechild. It was formally adopted as the 2nd 'TSA' following the A-6 Intruder, but it is classified as a TSF in terms of its structure, specifications, and method of operation.

The A-6 Intruder was an environment-specific craft that was developed to secure bridgeheads in landing operations. It was expected to have the ability to stop the slow, yet deadly pressure of the Tank class for an extended period of time, following the invasion waves of the Destroyer and Grappler classes, all of which were threats during close-quarters combat with the BETA.

In 1976, the A-6 proved that it had more than adequately met its required specifications during a series of combat tests in Eurasia, using its trial mass production craft.

Praising its specifications, the US Army determined that they required a craft with the same kind of stopping power while also being able to operate on land. They launched the A-X Program, which sought submissions for prototype drafts from mainline armament manufacturers in the US. The companies that responded all looked into ways to appropriate or improve the A-6 Intruder for combat on land, but these plans would lead to immediate failure.

Initially, the A-6 seemed geared towards base defense, since it sacrificed its mobility for defenses, force projection, and ammunition capacity. Therefore, seeking additional mobility on land where buoyancy could not support it, and adding three dimensional movement through a jump unit were significant contradictions against its the original development concept.

Deploying a craft with low mobility and maneuverability to combat on land, without the ocean as an emergency escape route, was essentially 'feeding the BETA', and the plans to refurbish the A-6 Intruder were shelved for good.

These manufacturers proposed alternatives through ideas such as a completely new design, or by making a strengthened F-4 Phantom variant. They agonized over the resulting lengthy development and their inability to match the required specifications, but a proposal by Firechild appeared different to the rest.

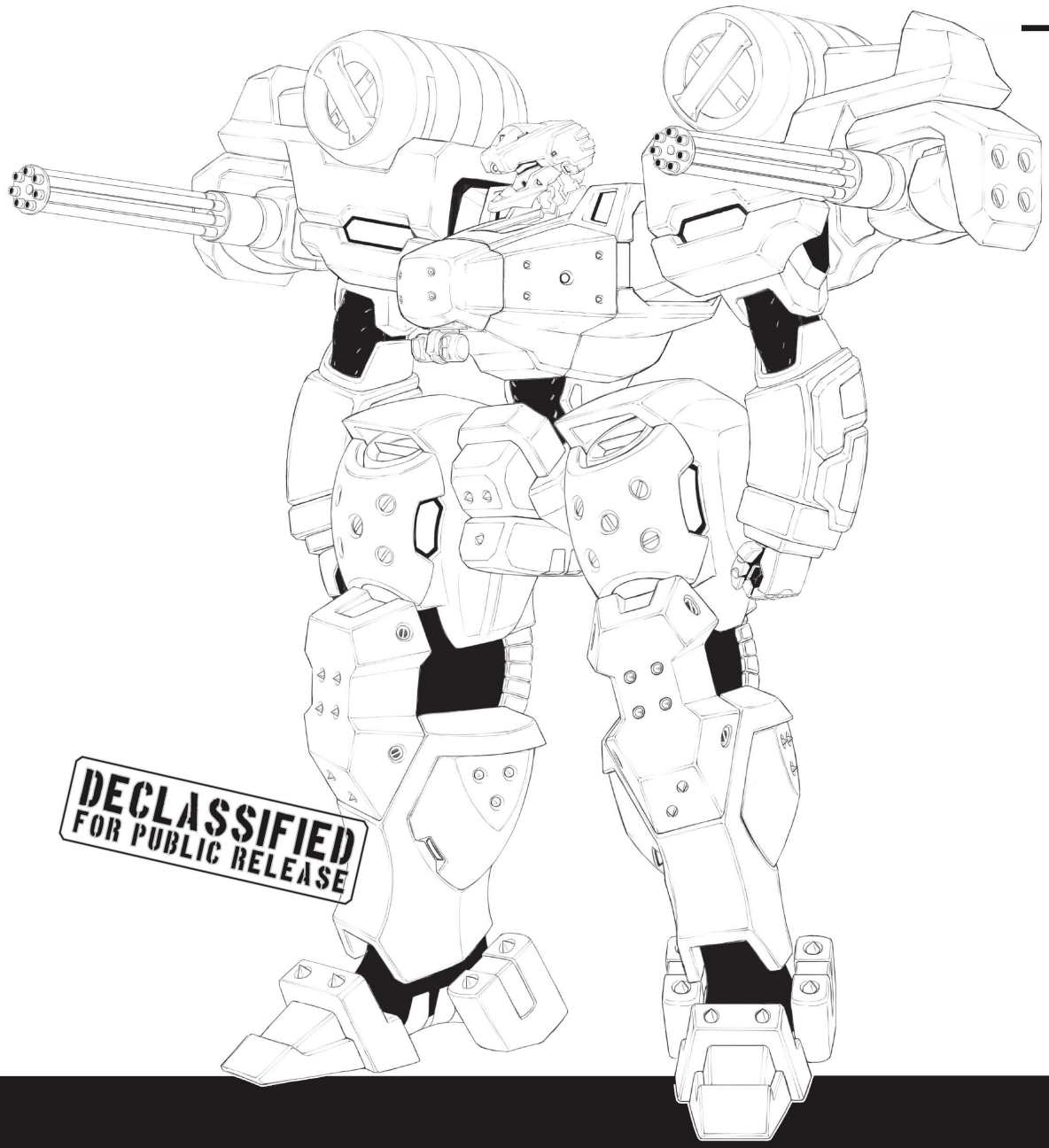
They directly appropriated the basic structure and frame of the A-6 Intruder, which other manufacturers had abandoned, and were trying to create a completely different craft by redesigning the control systems as well as the placement of joint structures and carbonic actuators.

Although it had been slightly improved, the low mobility of a large craft, which could even be called a heavy TSF, was naturally pointed out as being problematic.

However, Firechild responded to the problem by limiting the new craft's role as part of combined arms, alongside TSF vanguard forces consisting of craft such as the F-4 Phantom. It was also to be specialized for medium range support and the suppression and elimination of Grappler and Tank class BETA. Furthermore, it would adopt an explosive spike mechanism, the 'Javelin', to counteract Tank classes that would latch on.

A-10 Thunderbolt II

United States: 1st Generation Tactical Surface Attacker



This defensive weapon could significantly improve the survivability of the craft, so long as the burster pellets in it could last long enough. However, the Javelin also significantly increased the craft's overall weight, so it was not adopted on future craft, but was extremely suited to this craft, which did not seek mobility.

Finally, this craft could also immediately share the production line with the A-6 Intruder, allowing for a significantly reduced development budget and time to combat deployment. These were touted as its greatest merits.

The US Army bestowed the 'comparatively decent' Firechild proposal with a budget, and hurried them to finish a prototype craft.

Day in and day out, the craft's development continued, and even though they were ahead of schedule, they still faced the problem of a lack of output with the main engine in the jump unit.

This was a serious obstacle in the program, and it resulted in a dismal first impression during operational trials, due to flaws such as its 340 second limit on continuous flight, and the restriction of firing the GAU-8 forwards during flight, to avoid stalling.

These problems were resolved when a strengthened main engine was developed. In 1978, the US Army formally adopted it as the A-10, and gave it the nickname 'Thunderbolt II'.

The A-10 Thunderbolt II had pushed the concepts of 1st-generation craft of heavy firepower and armor to their limits. Even so, its promised ease of manufacturing was no lie, and in a short period of time it was ready for operation by several forces. Its supply was prioritized to the European NATO forces, which were facing worsening battle conditions at the time.

As expected, its low mobility and maneuverability were panned by frontline Surface Pilots. However, its high survivability in dense close-quarters combat, and its firepower, outperforming a flight of F-4 Phantoms, were well-received by both the East and West German armies, which had taken on city defenses. When the craft's operational strategies became entrenched, it gained an overwhelming amount of trust, earning nicknames such as 'Kanonenvogel' and 'Tank Killer'.

Even after its procurement by the US Armed Forces ended in 2000, production of the craft continued. The C type raises its specifications to 2nd-generation levels through weight reductions in armor, refitting of avionics, and the addition of OBW. This variant is being used by the European Union and the Middle East Coalition.

F-14 Tomcat

United States: 2nd Generation Tactical Surface Fighter

United States: 2nd Generation Tactical Surface Fighter
F-14 Tomcat

The F-14 Tomcat was the world's first 2nd generation TSF and was deployed in 1982. It was developed by Grunnan (currently Northrock Grunnan). It was expected to be used in offshore deployment forces, centering around mobile carrier task forces, and it mainly conducts landing support by using long range missile attacks. The craft was also designed with medium to close range area control combat in mind. In order to respond to various missions, it is crewed by 2 Surface Pilots. In this multi-seat variant of the control unit, the combat pilot sits at the front and the navigator sits in the back.

The US Navy had analyzed anti-BETA combat in Eurasia and submitted their findings as a report. From this report, the US government changed the designs of all Nimitz class nuclear powered aircraft carriers (excluding the 1st Nimitz class carrier), which were under construction at the time. These would be converted into full scale TSF carriers, capable of deploying just under than two battalion's worth of TSFs. Following this, the US Navy ordered Grunnan to develop a craft to succeed the F-11 Tiger, which was the first carrier-oriented TSF in history.

Grunnan was eager to orchestrate the revenge of the F-11 Tiger, which in reality had been treated as a failure, with its seat stolen by the F-4 Phantom. They used its negative feedback to the fullest in order to meet the navy's harsh requirements, and they focused the company's entire strength on designing a successor. Half a year later, the blueprints and specifications of this craft were submitted to the navy and were met with a very enthusiastic response from their officials.

■ The Navy's Required Specifications and Grunnan's Solutions

- Operation of a new, dedicated, and large support missile
- The extension of continuous operative time
- High survivability
  →The enlargement of the craft body, and the adoption of a multi-seat control unit
- Significant improvements in mobility and motility
  →Exchanging the heavy armor for lightweight composite armor made of a new material, and the adoption of OBW
- Aerodynamic control concepts
  →Adopting a variable wing structure on the jump unit

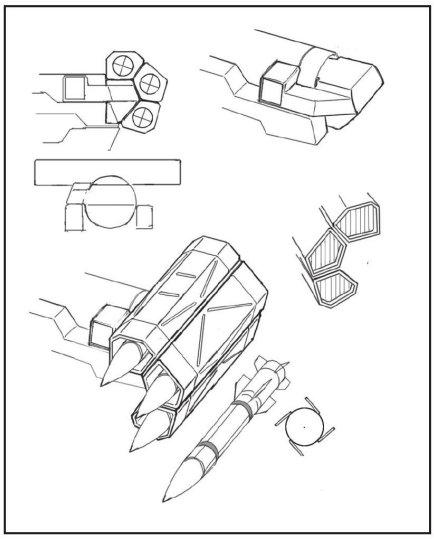
This was an ambitious TSF design that actively adopted innovative technologies. The navy was delighted by the submitted design, and placed an exceptional advance order of over 100 crafts, even though it was still in its design stages. They also committed to financially supporting the development, while asserting their high expectations. Backed by plentiful funds, development was smooth, and in November 1981, the first mass production craft was handed to the Navy.

The F-14 Tomcat was very well received by the navy's leadership. During the ceremony to introduce the craft, the 'Father of TSF' in the navy, Admiral Lascaux Helen Carter lavished it with the highest praise, stating that, "With the introduction of the F-14, all other TSFs have become obsolete overnight".

As of 2001, the F-14 Tomcat has begun to be brought into retirement ahead of schedule, due to its rising maintenance costs. The F-18E/F Super Hornet would replace it as the navy's mainline craft. Some crafts entering retirement are being downgraded to be sold off to pro-US countries in Africa as well as to Iran, the only nation other than the US to have introduced the F-14.

In 1987, it was also proposed for sale to Imperial Japan, setting off an intense marketing battle against the F-15 Eagle. However, it was not adopted due to its deficiency in close quarters combat abilities.(※)

※The commotion over a dogfight at Iruma Base, as part of comparative inspections, is famous for symbolizing the intense marketing battle.



▲AIM-54 Phoenix
A large, long-range guided missile system, designed for use on the F-14 Tomcat.
It was developed to be able to conduct suppressive attacks from outside of the firing range of the Laser class, by using cover such as the terrain, or the horizon before the shore party lands. The system uses a type of cruise missile, and it reaches its target with automated guidance via a GPS and terrain contour matching, making it possible to simply fire and forget.
The missile breaks apart above the target and suppresses a wide area by dispersing small explosives. The system is commonly called the 'Phoenix', and consists of a launcher pod equipped on each shoulder block, with each pod holding up to three large cluster missiles. A single squadron can focus fire to inflict significant damage to even a brigade scale BETA group, including Laser classes. However, starting with the costs of the missile itself, with its high-precision guidance system, the high operating costs of the entire missile system creates a bottleneck. The production of the Phoenix was halted when the F-14 Tomcat was retired. However, license productions of the Phoenix for the MiG-25, MiG-31, and the Su-32 are still being used.

Middle Eastern Coalition Army
F-14Ex Super Tomcat

The F-14Ex Super Tomcat is a quasi-3rd generation TSF being collaboratively developed by the Iranian Army and Northrock Grunnan.

It is an upgrade over the F-14 Tomcat with greater close quarters dogfighting abilities.

While being the oldest 2nd generation craft, the F-14 Tomcat is also a large craft, and because of this, it has a lot of free design space for modifications. Successive refurbishments have resulted in the F-14D, the latest model, which has the same overall capabilities as the F-15C.

However, by the time of its retirement, it had already bested the F-18 Hornet in almost every aspect, despite the F-18 being the successor. The F-14 had better operative time, combat capabilities, and more trust from the Surface Pilots coming from carrier combat teams that were experienced in combat. Factions of the navy leadership thought the same, with some officials saying that the craft's continued operation should at least be considered.

Seemingly jumping onto the bandwagon, Northrock Grunnan proposed the 'Super Tomcat Program' to the Navy, which would upgrade the existing F-14 Tomcat into a 2.5th generation craft through refurbishments alone.

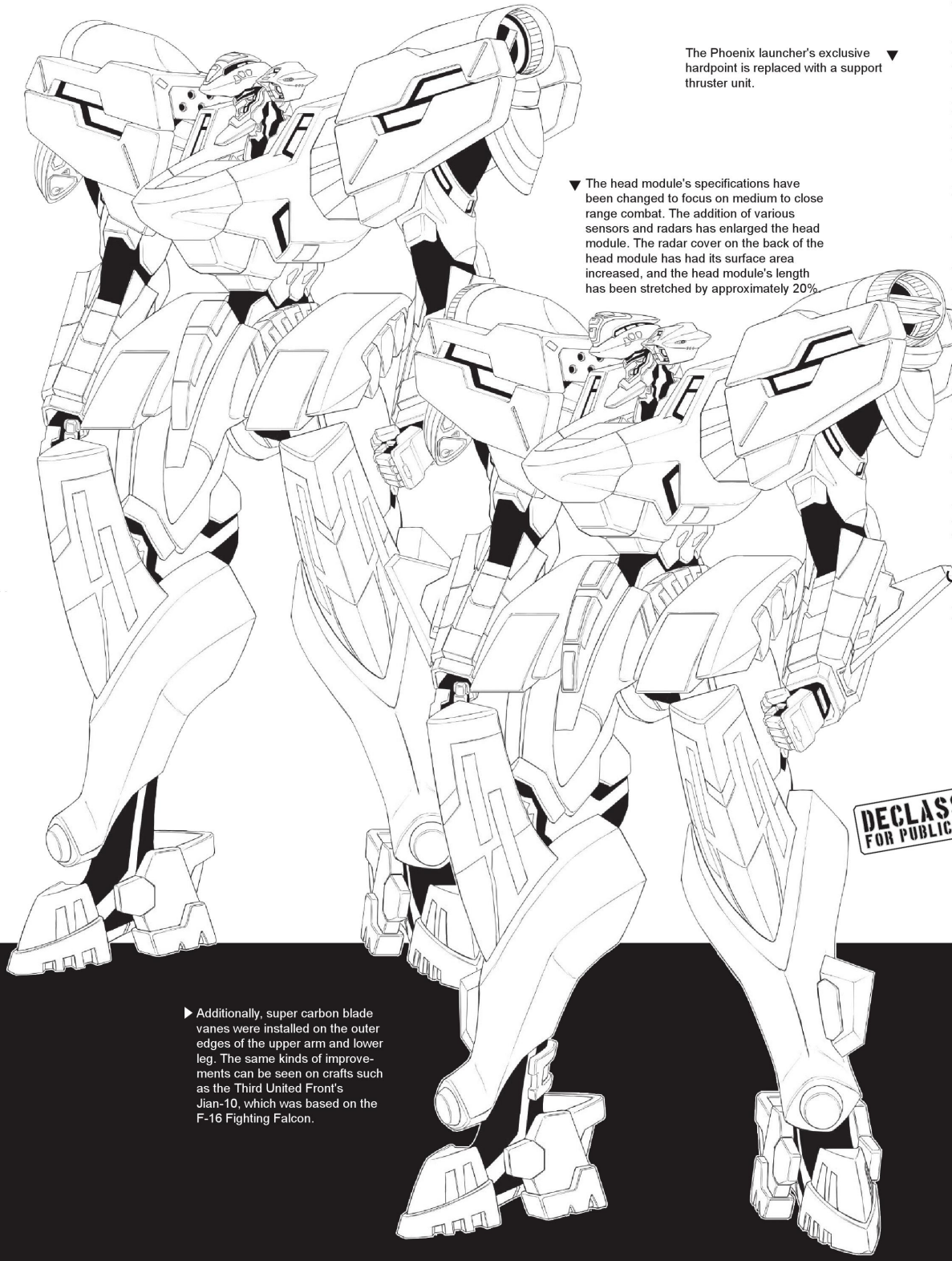
However, the program would face difficulties due to the high costs of refurbishment. Furthermore, due to the fact that the refurbished F-18 (The F-18E/F Super Hornet), which had been completed in the meantime, displayed higher than expected overall specifications, the program would be shelved.

As a relief measure for Northrock Grunnan, with nothing else going for them, the US government resubmitted the same plan to Project Prominence, as a means of strengthening the close quarters combat abilities of the F-14s sold to Iran. In the following year, it was accepted, and Northrock Grunnan were to work alongside the Iranian Army in developing the F-14Ex.

As of 2001, the first crafts that had been refurbished are conducting operational tests in Yukon Base. Other than the F-14Ex, there exists the F-14E, a D Type with small scale refurbishments. The F-14E is currently used by the US Navy's 103rd TSF Squadron 'Jolly Rogers'.

F-14Ex Super Tomcat

United States: 2.5 Generation Tactical Surface Fighter

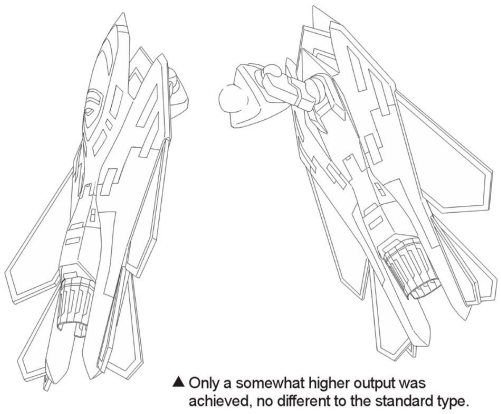


▼ The Phoenix launcher's exclusive hardpoint is replaced with a support thruster unit.

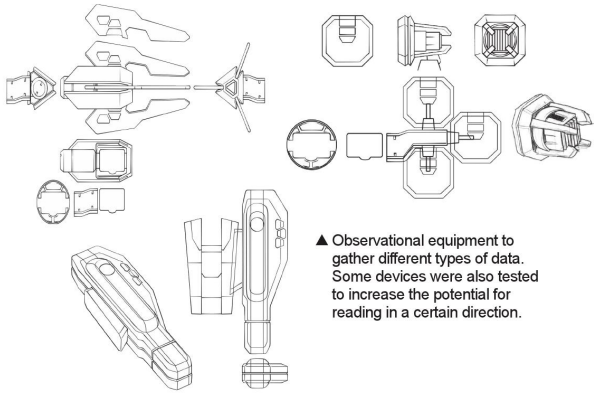
▼ The head module's specifications have been changed to focus on medium to close range combat. The addition of various sensors and radars has enlarged the head module. The radar cover on the back of the head module has had its surface area increased, and the head module's length has been stretched by approximately 20%.

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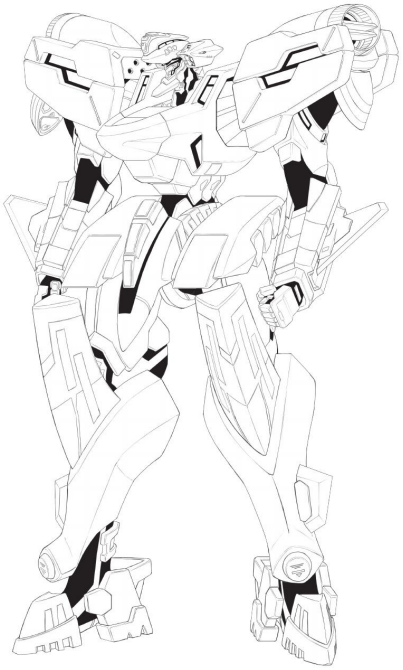
▶ Additionally, super carbon blade vanes were installed on the outer edges of the upper arm and lower leg. The same kinds of improvements can be seen on crafts such as the Third United Front's Jian-10, which was based on the F-16 Fighting Falcon.



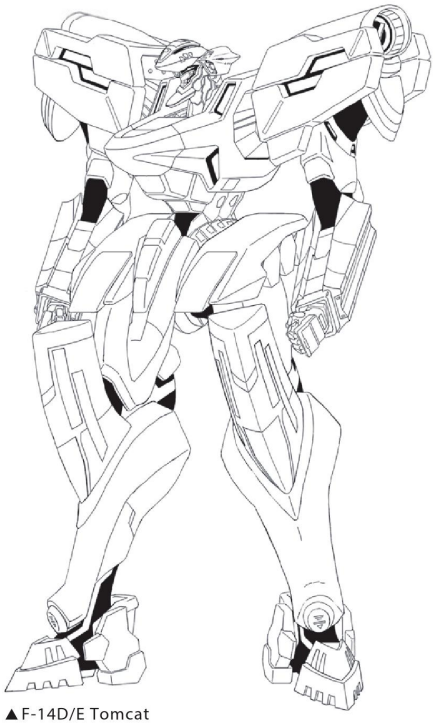
▲ Only a somewhat higher output was achieved, no different to the standard type.



▲ Observational equipment to gather different types of data. Some devices were also tested to increase the potential for reading in a certain direction.



▲ F-14Ex Super Tomcat



▲ F-14D/E Tomcat

Alternative 3 Special Operations Unit: 2.5-Generation Tactical Surface Fighter
F-14 AN3 Mindseeker

The F-14 AN3 Mindseeker (Russian: РокСова; 'Roksavor') is a multi-seat TSF for exclusive use in special reconnaissance operations. It was refurbished and upgraded by Northrock Grunnan under orders from the Alternative 3 General Headquarters.

Alternative 3's main objective was to read the thoughts of BETA by using artificial espers, so this craft was developed from the F-14D as a hive assault and reconnaissance craft for A-01, which served directly under Alternative 3.

The craft commenced operations in 1990, and in 1992, it was first deployed to combat during Operation Swaraj, which sought to capture the Bhopal Hive in India. Until it was requisitioned by Alternative 4 in 1995, it served in special reconnaissance missions across the world.

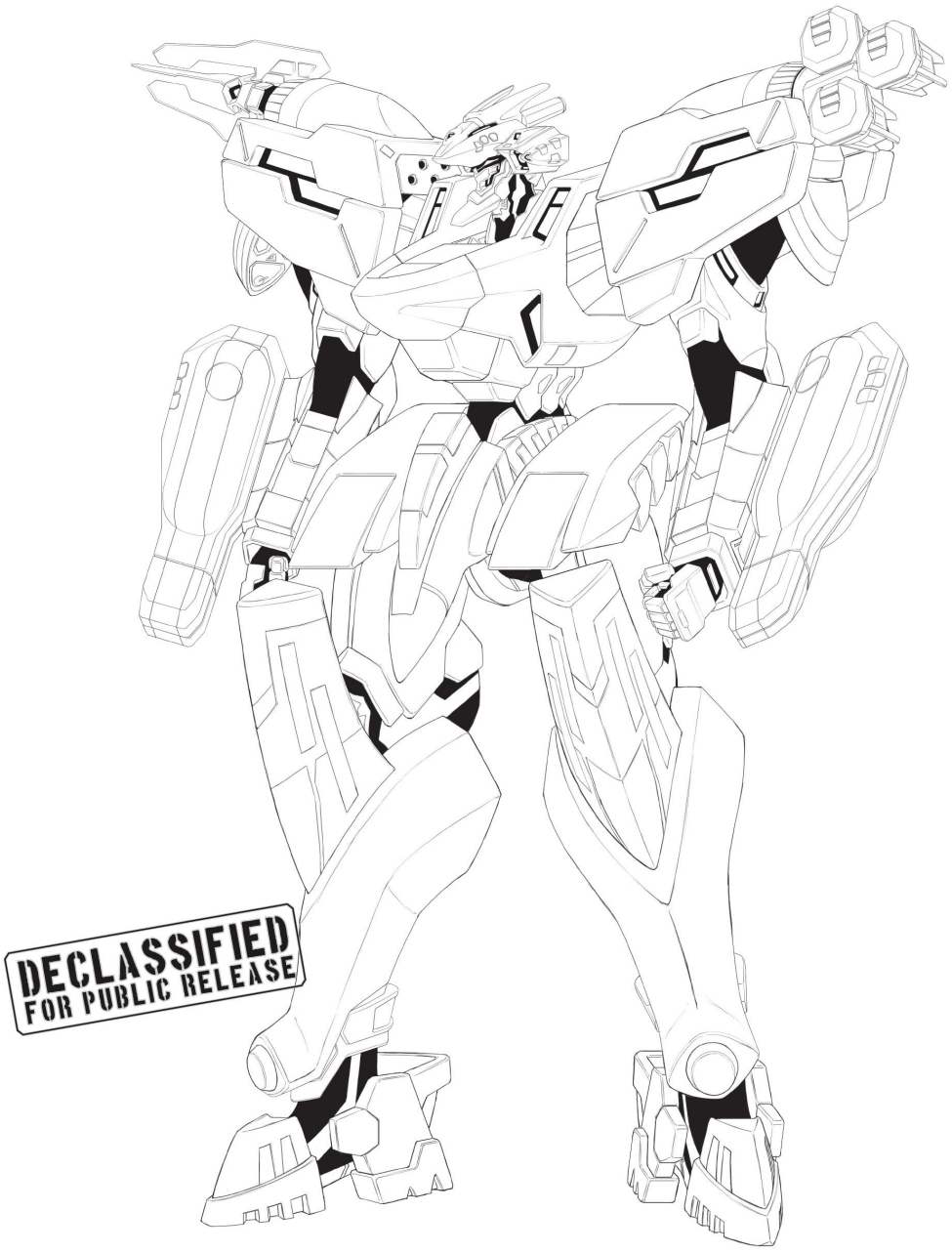
The use of the AIM-54 Phoenix missile system, which was the key characteristic of the original F-14 Tomcat, was omitted to reduce its weight, and due to its role as a reconnaissance craft. Furthermore, many composite sensor pods were equipped on the head module, shoulder blocks, and forearms, to assist in the anti-BETA thought readings of the artificial espers, and to collect research data.

The control unit of the F-14 AN3 is a multi-seat variant. However, controls are performed entirely in the rear seat, normally reserved for a navigation control officer, whereas the front seat, normally occupied by a weapons control officer, has been refitted for exclusive use by special recon personnel (Artificial Espers). This was due to the rarity of artificial espers who were also excellent Surface Pilots, so this placement allows them to dedicate their full attention to reading and projection, which require large amounts of focus.

The artificial espers were created as Alternative 3's trump card for gathering anti-BETA intelligence. However, the effective range of their special abilities, reading and projection, vastly underperformed the theoretical values. This created the necessity to physically close the distance with the research target,

F-14 AN3 Mindseeker

United Nations: 2.5th Generation Tactical Surface Fighter



the BETA. Hence, the Alternative Program General Headquarters mandated the specifications to include a multi-seat control unit so that an artificial esper could board it. They also wanted it to load a large amount of observation equipment, and to have ways for the reconnaissance force to return safely from the depths of the hive with the data after an assault reconnaissance. This was to be a strategic assault and reconnaissance unit that would effectively achieve Alternative 3's desired outcomes.

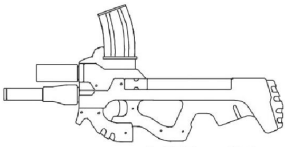
In response, the Soviet Union presented a refurbishment proposal of the state-of-the art MiG-31 Plamya-Lisa. However, as it had no advantages other than its hive infiltration abilities and its defenses, and because it lacked mobility and maneuverability, which reduced its survival rate, it was rejected.

Normally, the equipment required for the Alternative Program is supplied by the host country, but after losing faith in Soviet TSFs, the Alternative Program General Headquarters commenced the selection of the craft through the UN, which ended up choosing the F-14. Despite the F-14 Tomcat only being adopted as a base for refurbishments, having an American-made TSF as the operational craft for the Soviet-led Alternative 3 was still seen as scandalous.

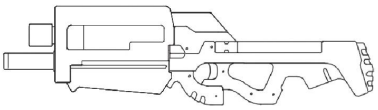
Rumors suggesting that this choice was politically motivated never died down, especially since the personnel responsible for the F-14 AN3's preparations and combat operations were engineers from Sufoni Design Bureau(※).

In response, the UN General Headquarters and the US government jointly announced their official stance to the nations involved. They stated that it is an undeniable fact that all Soviet-made TSFs are inferior to the F-14 in both reliability and overall capabilities. They also warned that pointlessly provoking suspicion regarding this in the future would be seen as a criminal act against humanity and any offender would be a target of UN sanctions.

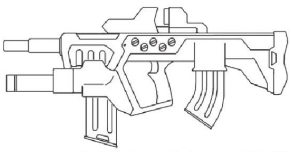
※ Later, Sufoni would complete the Su-27, from the technology provided to them by Northrock Grunnan in secret.



▲ IJF Type 87 Assault Cannon

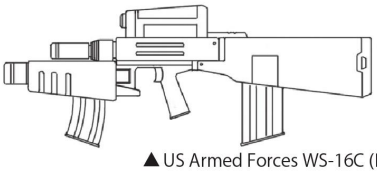


▲ IJF Type 87 Support Assault Cannon

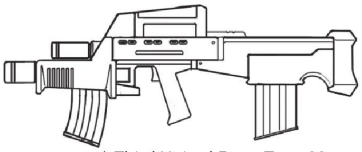


▲ US Armed Forces AMWS-21 Combat System

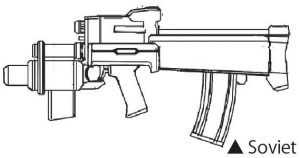
■ A comparison of the firearms used by TSFs from across the world. To align with required specifications, many variations of armaments exist, such as melee blades and shields.



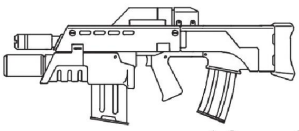
▲ US Armed Forces WS-16C (Retired)



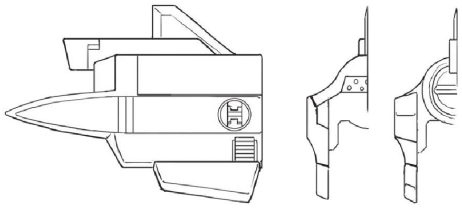
▲ Third United Front Type 82 Tactical Assault Cannon



▲ Soviet Union Armed Forces A-97

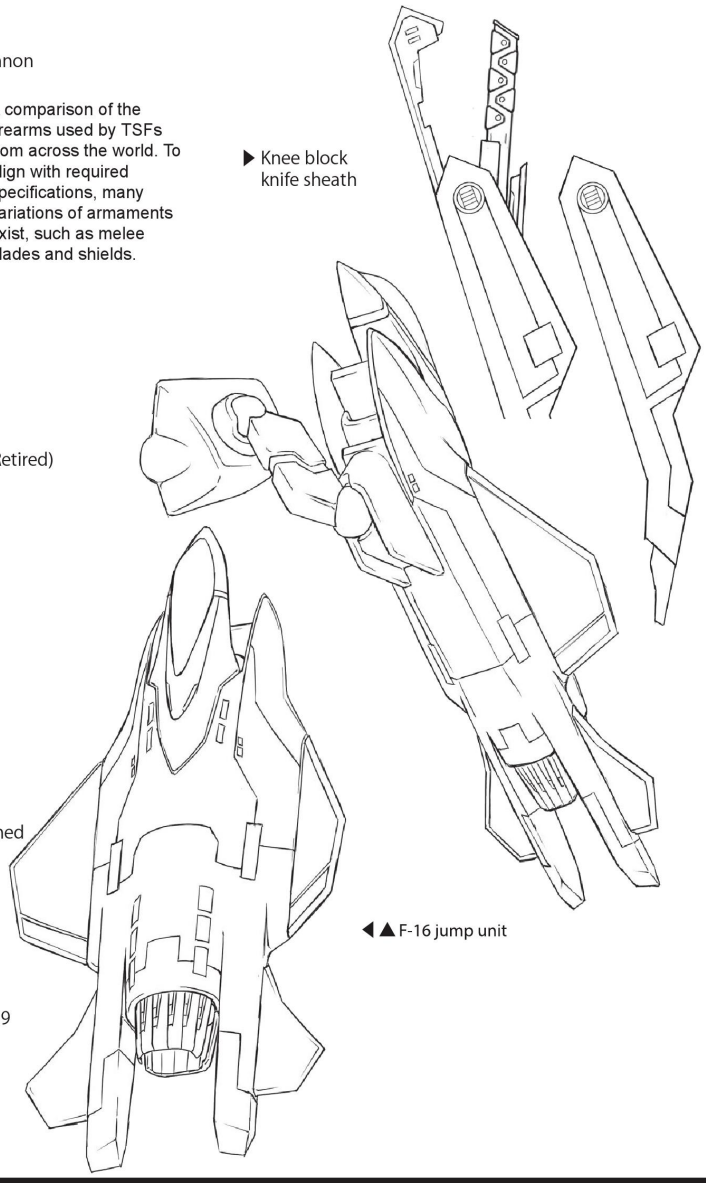


▲ German Army GWS-9



▲ Shoulder block

▶ Knee block knife sheath



◀ ▲ F-16 jump unit

United States: 2nd Generation Light Weight Tactical Surface Fighter

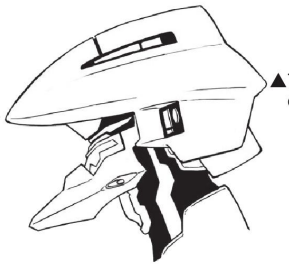
F-16 Fighting Falcon

A lightweight second generation TSF that was developed by American manufacturer General Dynomics. The 1980s saw the deployment of two high quality 2nd generation crafts in the F-14 Tomcat and the F-15 Eagle, but their procurement costs soared due to their high specifications. This put pressure on the national defense budget, and ultimately led to interruptions in planned procurement numbers.

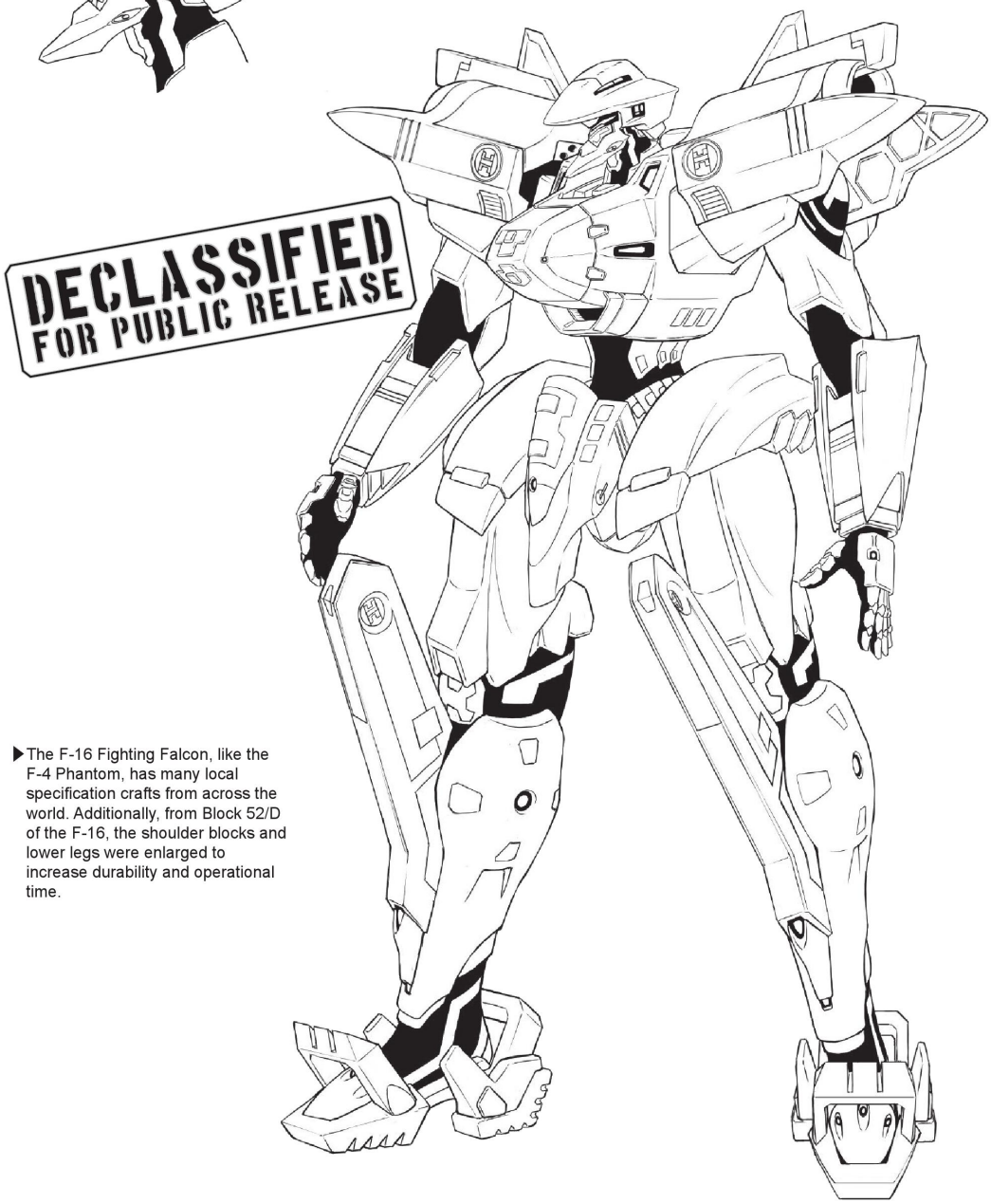
This would prove to be a headache for the US Army and the Pentagon, which sought to renew and strengthen their anti-BETA combat capabilities quickly. The US government took this situation seriously and came to draw up the 'High-Low-Mix' Initiative. They also put their support behind the LWTSF (Lightweight Tactical Surface Fighter) Program, by promoting it from its original goal of technology research into a combat craft development program. Through this, they created the cheaper, high specification 2nd

F-16 Fighting Falcon

United States: 2nd Generation Light Weight Tactical Surface Fighter



▲The head's design follows the same design trend as the F-14 and F-15.



▶The F-16 Fighting Falcon, like the F-4 Phantom, has many local specification crafts from across the world. Additionally, from Block 52/D of the F-16, the shoulder blocks and lower legs were enlarged to increase durability and operational time.

generation craft, the F-16 Fighting Falcon.

Compared to the F-15 Eagle, it was smaller and lighter, giving it less design space for further improvements. However, it had adopted many innovative technologies across many of its parts, and demonstrated extremely high mobility and maneuverability during combat.

Due to this, it was deployed not only to the US, but was actively exported around the world as a 2nd generation craft to replace the F-4 Phantom and the F-5E Tiger II.

Many local specifications exist, such as the Jian-10. However, whereas F-15 variants are similar in appearance, F-16 variants differ greatly in this respect, as their upgrades often involved redesigns to the craft's airframe, due to the F-16 having less spare design space.

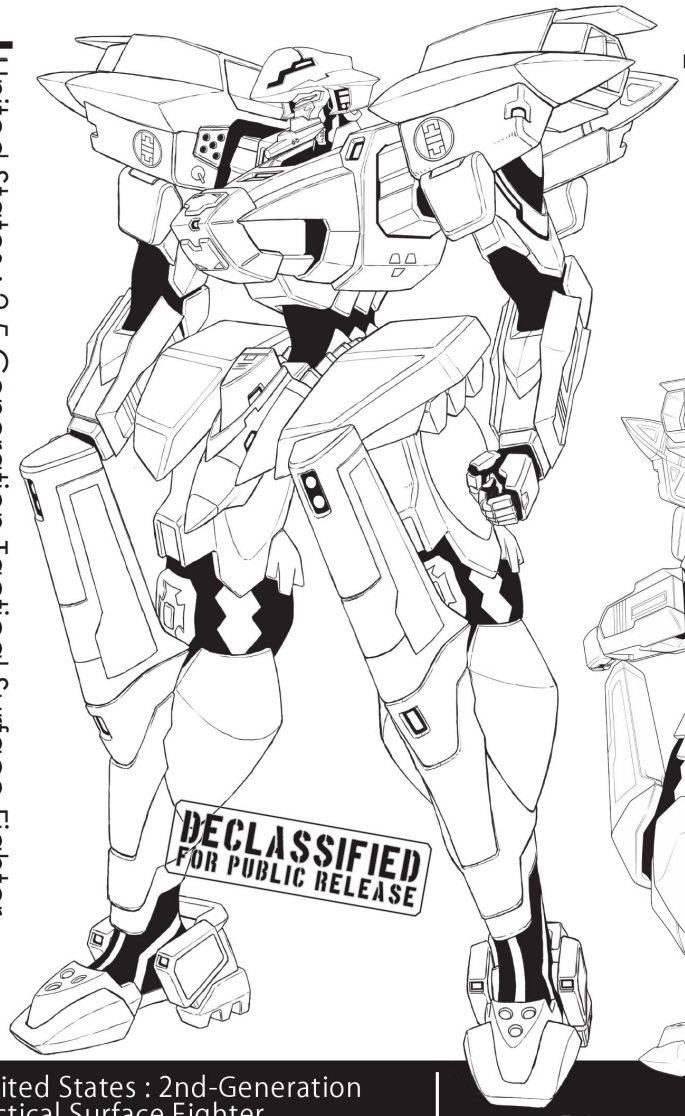
As a side note, many US Surface Pilots call this craft the 'Viper', a nickname from its prototype stages during the LWTSF Program.

Though this defeated the YF-17 Cobra in the LWTSF Program, that craft would soon be formally adopted in the navy as the F-18 Hornet.

In 1991, General Dynomics sold off most of its TSF development department, and as of 2000, the F-16 Fighting Falcon is being manufactured by Lockweed Mardin.

F-18E/F SUPER HORNET

United States : 2.5 Generation Tactical Surface Fighter



▶ AMWS-21 Assault Cannon



United States : 2nd-Generation Tactical Surface Fighter F-18E/F Super Hornet

The F-18E/F Super Hornet is a 2.5th-generation TSF developed by American manufacturer McDaell Doglam, which is based on the F-18 Hornet.

■Developmental History

The US Navy had already been deployed across the entire Eurasian continent, and planned to increase the numbers of deployed TSFs, in order to support the several fronts that were being worn down. However, they were facing troubles with the costly procurement and operation of the F-14 Tomcat, which was the 'high' in their High-Low Mix.

After quickly abandoning the Super Tomcat Program, which would have refurbished the F-14, they decided to widely adopt the F-18E/F Super Hornet, which was comparatively lower in price, and was already in the process of being refurbished.

The F-18 Hornet itself was met with a mediocre reception, but McDaell Doglam responded by proposing the 'Hornet 2000 Program', which was based on the F-15 Eagle refurbishment program (the DRTSF) which was also underway at the time. After gaining approval from the Navy, the large-scale refurbishment, which was on the scale of a complete redesign, was launched, with plans to give the F-18 Hornet specifications surpassing those of the F-14 Tomcat. By the end of 1994, the craft commenced deployment to the US Navy.

■Main Improvements

The sensor's capacity was expanded by stretching the head module, and its electronics were strengthened by refitting various avionics. Side thrusters were also added to its shoulder block armor. Its defenses were reinforced and its operative time was extended by enlarging its waist armor block and its lower legs. Overall, it was upgraded across the board.

Furthermore, new materials and a redesign helped to improve the airframe's rigidity and toughness, and this also helped to increase the output of the jump unit's main engine. Its vertical climbing ability, which was once considered its weakness, was also dramatically improved. By increasing the thrust-weight ratio and the size of the airframe, it could solve the craft's armament mounting problem.

■A Clean Slate

Although the F-14 Tomcat still reigns supreme over the F-18E/F Super Hornet, in terms of simple numerical values, the F-18E/F does not lose to the F-14 across a variety of uses. Its 'cost performance', which once haunted the craft as an excuse for its poorly-received specifications, quickly became known to emphasize the craft's excellence.

Proof of this rests in its use in not only the US Navy and Marines, but also in North America, EU, COSEAN, Australia, and Africa. Now that it has overtaken the F-15 Eagle in the number of craft manufactured, the F-18E/F Super Hornet, an all-climate, all-terrain TSF, has become McDaell Doglam's best-selling craft.

■SPECIFICATION

Model Number：F-18E/F
Generation：2.5th
Year of Deployment：1994
Manufacturer：McDaell Doglam (Currently Boening)
Jump Unit Engine：FE414-GE-400
Height：18.5m

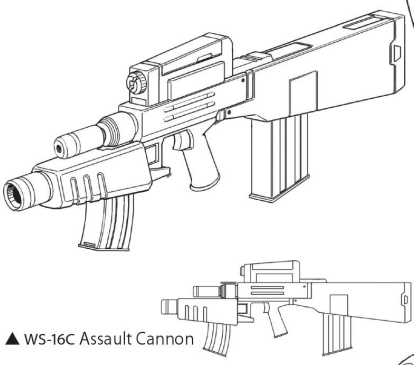
F-18A/B C/D HORNET

United States : 2nd Generation Tactical Surface Fighter

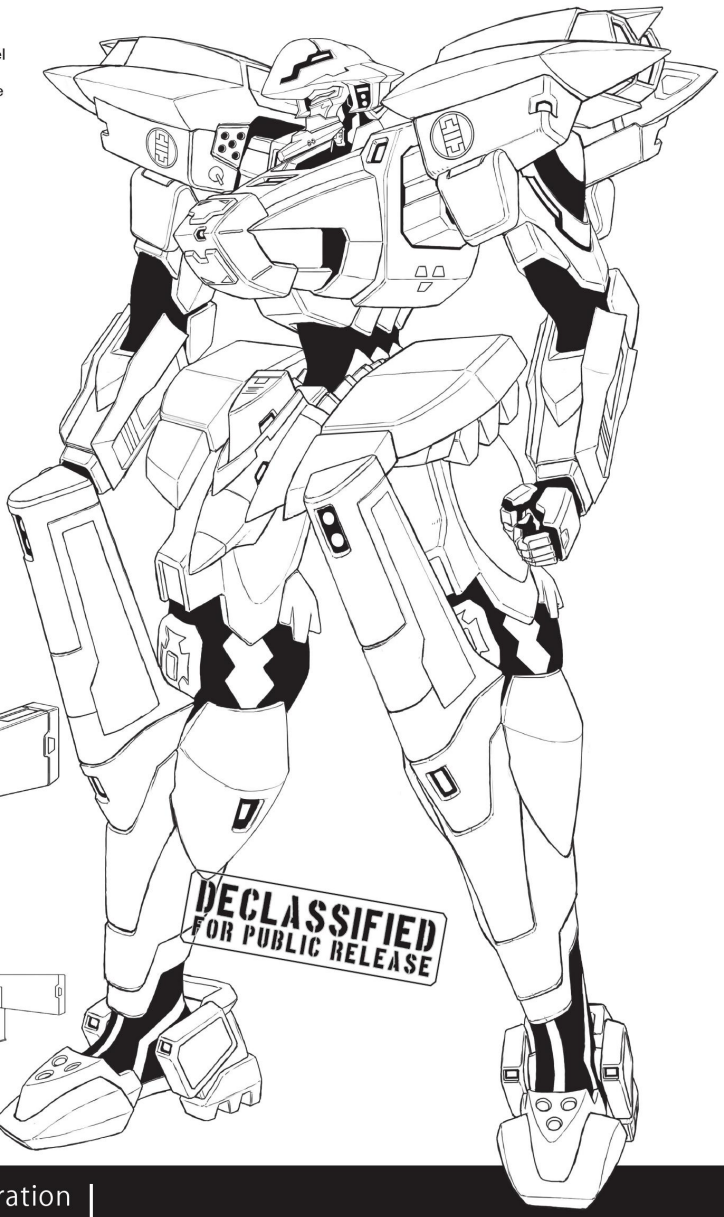
▶ The innovative slit shaped parallel thruster nozzles on the shoulder blocks further highlight the unique form of the armor blocks.

▶ Craft

As the newest 2nd-generation craft after the F-15 Eagle and the F-16 Fighting Falcon, it incorporates many ambitious designs. McDaell Doglam retained Northrock's unique flavor of the prototype.



▲ WS-16C Assault Cannon



United States : 2nd-Generation Tactical Surface Fighter
F-18A/B C/D Hornet

The F-18 Hornet is a 2nd-generation TSF developed by American manufacturer McDaell Doglam. It was based on the YF-17 Cobra demonstrator trial craft made by Northrock, as a prototype entrant in the Lightweight TSF (LTSF) Program's competition.

■Developmental History

The YF-17 was defeated by General Dynomics's prototype, the YF-16 Viper, and so it missed its opportunity to be adopted by the US Army. However, the US Navy, which was being pressured by the significant procurement and operating costs of the F-14 Tomcat, turned their attention to this craft's cost-effective armament mounting ability and its balance of operational time and mobility. They then ordered refurbishments to convert it into a carrier-loadable TSF.

Several years of adjustments followed, including a control block that deployed horizontally, since TSFs loaded on carriers were stored in a supine position. The arms holding the armor blocks and the shoulder blocks were also extended. It was adopted in 1987 as the mainline craft for the Navy and Marines.

■Reception and Aftermath

The F-18 was well received as a multirole TSF, which excelled in cost efficiency when compared to the F-15 or F-14. Several countries, starting with Australia, formally adopted it as their mainline craft to replace the F-4 Phantom. However, it only received a lukewarm reception from frontline Surface Pilots due to its mobility and maneuverability characteristics, such as in-combat vertical climbing abilities, being inferior to other mainline craft relative to its airframe durability.

In response to the requests of the US Navy and Marines, which held the same dissatisfactions about the craft, McDaell Doglam decided on a complete refurbishment of the F-18 Hornet. The production lines of the F-18 Hornet would be shut down in 1992, when the revised craft, the F-18E/F Super Hornet, began development. When this craft was deployed in 1994, the old 'Hornet' would come to be known as the 'Legacy Hornet' to differentiate it from its successor.

■Notes

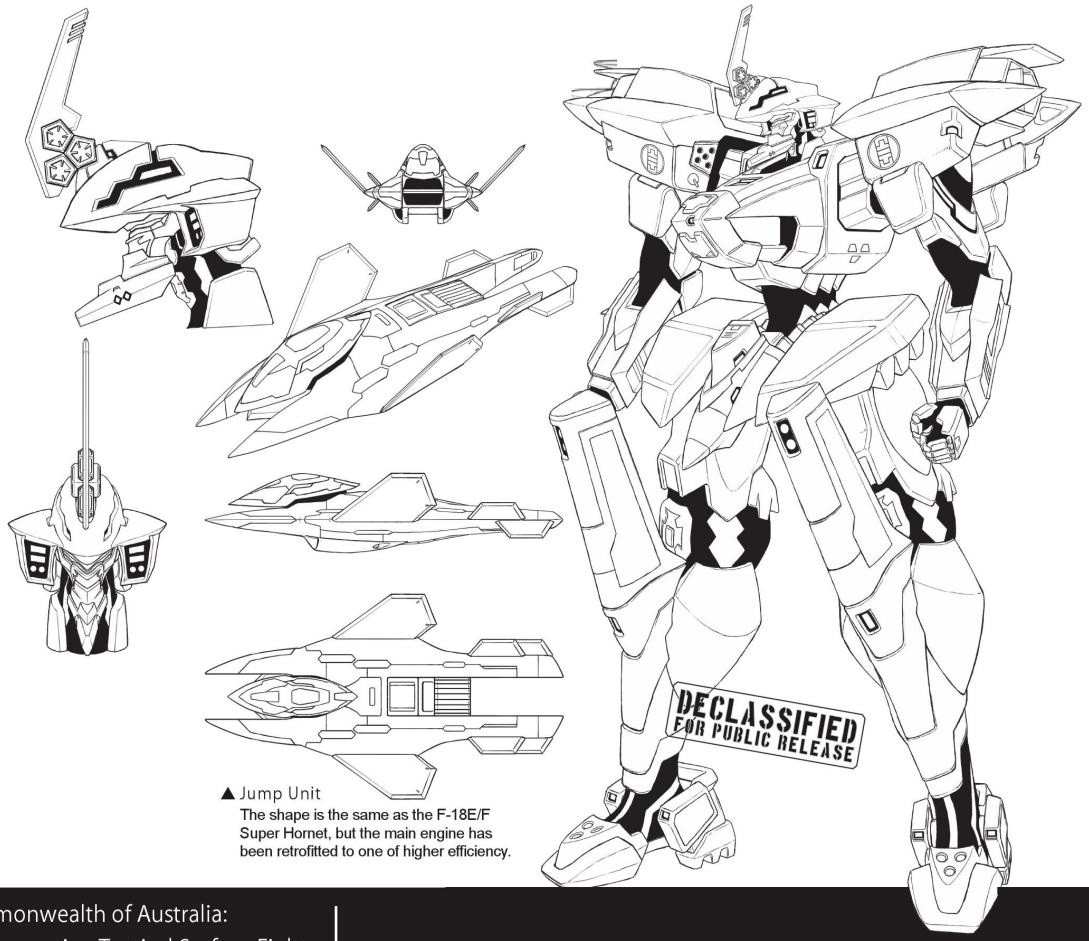
The single seat variant is the A Type, and the multi seat variant is indicated as the B type. These were later replaced by the C and D types respectively, each retrofitted with new avionics.

■SPECIFICATION

Model Number : F-18
Generation : 2nd
Year of Deployment : 1987
Manufacturer : McDaell Doglam
Jump Unit Engine : FE404-GE-400
Height : 17.0m

F-18 HMRV SMASH HORNET

Commonwealth of Australia : 2.5 Generation Tactical Surface Fighter



▲ Jump Unit
The shape is the same as the F-18E/F Super Hornet, but the main engine has been retrofitted to one of higher efficiency.

Commonwealth of Australia: 2.5-Generation Tactical Surface Fighter F-18 HMRV Smash Hornet

The F-18 HMRV Smash Hornet (High Maneuverability Research Vehicle) is a 2.5th-generation research and development TSF that is being collaboratively developed by the Australian military and Boening. It is based on the F-18E/F Super Hornet.

■Development Background

Although Australia does not have any direct contact with BETA controlled territory, it is actively improving its defense capabilities, while establishing close relations with the US. This allows Australia to maintain its international influence, which is appropriate for the biggest economic power in the southern hemisphere.

In regards to tactical armored power, expanding equipment for its navy is prioritized in order to maintain international influence. Furthermore, Australia tends to focus on craft that have both an army and navy specification.

However, Australia bases its national security on two tenets. These are risk management based on a geopolitical standpoint, and a focus on maintaining their allied relationship with the US. Additionally, by treating the defense of Southeast Asia and the Pacific as their own national defense's lifeline, Australia has remained economically efficient by not needing to gather the latest, strongest, and most expensive weapons. Rather, Australia is making efforts to consolidate its military power just enough so that it is not seen as a threat to the US in the future.

■Developmental History

In 1994, the Australian military moved from importing the F-18A Hornet to the F-18E/F Super Hornet. It then learned of the AAX Program being conducted by COSEAN in Southeast Asia, one of its main theaters of operation. The defense of Southeast Asia was the lifeline for Australia's own guarantee of safety, and a reduced presence in the region could not be overlooked in terms of risk management. The Australian government sought a craft that could demonstrate even greater mobile dogfighting abilities during ground combat in that region. They contacted the former McDaell Doglam employees in Boening, which were working on the AAX Program.

Despite the expected decline in TSF demand that would have been brought about by America's new anti-BETA strategy, two refurbishment plans for the F-18 just so happened to appear in quick succession. This caused Boening's TSF department to be overjoyed, and secured their active and dedicated involvement in these two programs to refurbish the F-18. Research and development into the required specifications started in 1997 at Yukon Base as part of Project Prominence. A demonstrator trial craft was completed in 1999, ahead of the AAX Program. From the following year of 2000, operational trials of the mass production test craft would continue at the same base.

■Craft Overview

In all respects, the Australian Army's requests for the F-18 HRMV were not insignificant. Of course, the craft needed to be able to conduct transoceanic operations while using vessels such as carriers as their bases, but they also needed lower fuel consumption and an increased operational radius. This was to be achieved with a combination of a new armor material, which maintained strength while weighing less, and a highly efficient and new jump unit engine. Its communications capabilities and the detection range of its sensors would also need to be increased to accompany the additional operational range.

Finally, almost as if to show off the resolve of the Australian military, the craft prioritizes a high survival rate and suppressive ability in close quarters dogfighting, even if its capabilities in mobile, ranged combat had to be set aside. Its nickname, the 'Smash Hornet' originates from its main requested specification; to be able to come flying in from its far away nest and smash the enemy to pieces.

However, the Australian Ministry of Defence's official position is that the procurement cost of the craft must be lower than any F-18 Hornet variant that was being developed at the time. From this, it was clear that the target it should 'smash' was the F-18AX of the AAX Program.

■Main Improvements

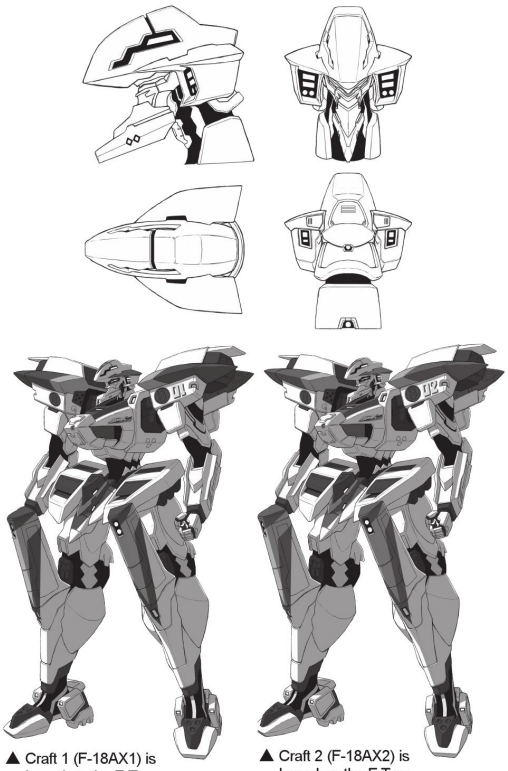
- New sensor masts were installed
- Avionics were refitted
- Efficiency of the jump unit's main engine was increased
- Armor refitted with a new, lightweight material

■SPECIFICATION

Model Number：F-18 HMRV
Generation：2.5th
Year of Deployment：Planned for 2003-4
Manufacturer：Boening
Jump Unit Engine：FE424-GE-400
Height：21.3m

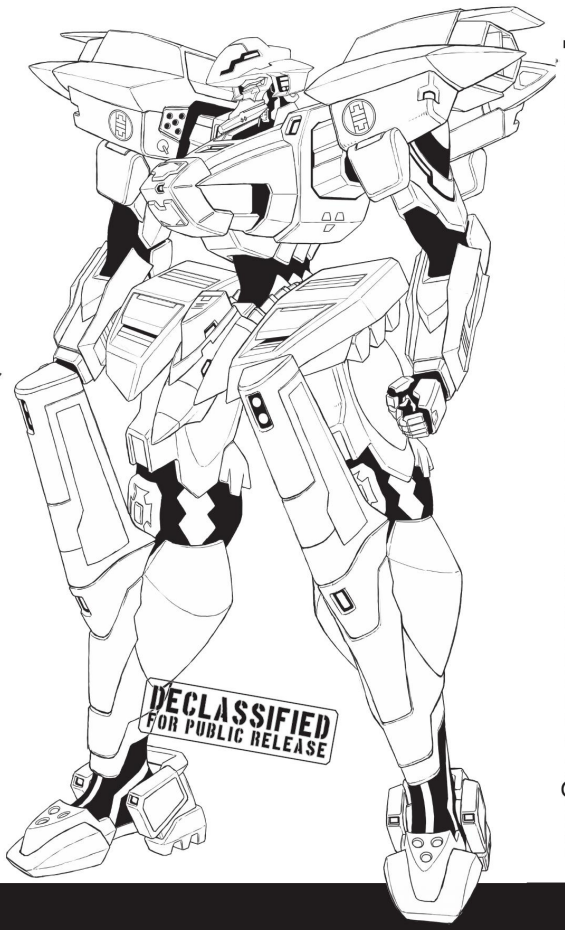
F-18AX RAGING HORNET

United States : 3rd Generation Tactical Surface Fighter



▲ Craft 1 (F-18AX1) is based on the E Type, and is a single-seat specification designed for the army.

▲ Craft 2 (F-18AX2) is based on the F Type, and is a multi-seat specification designed for the navy.



United States : 3rd-Generation Tactical Surface Fighter F-18AX Raging Hornet

The F-18AX Raging Hornet is an experimental craft that was developed as part of COSEAN's plan to independently develop a 3rd-generation craft. It was created by refurbishing the F-18E Super Hornet, a 2.5th-generation craft.

■Developmental History

In the 1980s, individual member states of COSEAN were procuring conventional weapons independently, and this significantly hindered the ability for COSEAN forces to establish strategies. Each nation had different specifications and standards of equipment, which mainly created problems with logistics. The increased variety of equipment bloated supplies, and complicated the resupplying process. The funds required to sustain these logistics weighed heavily on each country's finances.

This led to differences between better-off and worse-off countries, in regards to how many craft each country could deploy and the combat zones each country was deploying to. As the war continued, these differences became set in stone. This situation shook the foundations of the charter of the Coalition, which called for equality by distributing risks justly across the coalition. Eventually, the militaries of the member states began to distrust each other and the collaborative operations of the Coalition were brought into in jeopardy.

The UN, having changed their Eurasian strategy from 'elimination' to 'containment', was concerned about the weakened military in the East Asian and Southeast Asian Fronts caused by the internal conflict in COSEAN. They dispatched rapid deployment forces and provided economic assistance in order to more easily position themselves as arbitrators for the conflict.

After receiving this aid, the leaders of the member states agreed to resolve their problems at the Coalition headquarters in Indonesia, where they adopted the Jakarta Declaration, which would unify the procurement of TSFs over the course of several stages. During this period of turmoil, what had supported the front lines were the TSF forces from each country. Despite the problems of each country having their own conventional weapons, they had all imported either the F-4 Phantom or the F-5 Freedom Fighter, so no problems arose in joint operations with TSFs.

However, combat under situations where there was almost no artillery support or support from armored forces was extremely fierce, and the attrition rate of TSF forces would more than double. As well as this, the age of the craft was showing, but in the end, spare craft donated by the UN resolved the problem without issue. The coalition force held a deep-seated distrust of the UN, but was not in a state where it could import new TSF types. As beggars can't be choosers, they had to increase their reliance on forces dispatched from the UN.

As the latter half of the 90s approached, these craft were finally being replaced with those of the 2nd generation, such as the F-16 Fighting Falcon and the F-18 Hornet. However, the Coalition leadership was irritated by the considerable difference between them and other countries, which had already been deploying 3rd-generation craft. Former employees of McDaell Doglam, now working for Boening after the merger, had noticed this and used their position in the UN's Project Prominence (Advanced TSF Technology Development Program) to propose an independent 3rd generation development to COSEAN.

In 1996, fundamental research and development began, as the AAX Program (Advanced Asian Next-Generation TSF Program), which was to be based on the F-18E/F, and in 1998, the demonstrator test craft was rolled out. Development was conducted at Yukon Base by COSEAN's Garuda test flight. In 2001, the mass production reached the operational trial stage.

However, when considering the initial stance of COSEAN, which even while collaborating with the UN, had maintained a certain distance from them, it is highly likely that once the craft is completed they will proceed to their own independent research and development.

■Craft Overview

In line with the operational goals and national affairs of individual COSEAN nations, the F-18AX is being developed as a multirole TSF with proficient medium range, mobile bombardment, and close quarters dogfighting abilities, while being comparatively cheaper than other 3rd-generation craft. The goal of the craft is to reach operational abilities surpassing those of its benchmark, the F-15E Strike Eagle.

■Main Improvements

- The head module's shape was changed by mounting new sensors.
- Avionics were refitted
- Shoulder block armor thrusters were enlarged
- Vector nozzles were added to the waist block armor

■SPECIFICATION

Model Number：F-18AX1/X2
Generation：3rd
Year of Deployment：Planned for 2005
Manufacturer：UAAS／Boening
Jump Unit Engine：FE424-GE-400
Height：18.5m



[ATSF] Program - Advanced TSF Program

This was the next generation TSF development program, which began in 1983, just before the deployment of the F-15 Eagle, which the ATSF program sought to succeed. Lockweed and Northrock were chosen from a pool of seven proposals, which also included those from McDaell Doglam, Boening, General Dynomics, Grunnan, and Rokswell.

General Dynomics and Boening were partnered to Lockweed, while McDaell Doglam was partnered to Northrock, and both groups were instructed to produce two prototype crafts each. Later, as a result of the fierce development race between both companies, the more conservative, and reasonably priced YF-22 was formally adopted.

▼ Lockweed YF-22

	Development Nickname	Main Engine
Craft 1	N22YF	YF120-GE-100
Craft 2	N22YX	YF119-PW-100

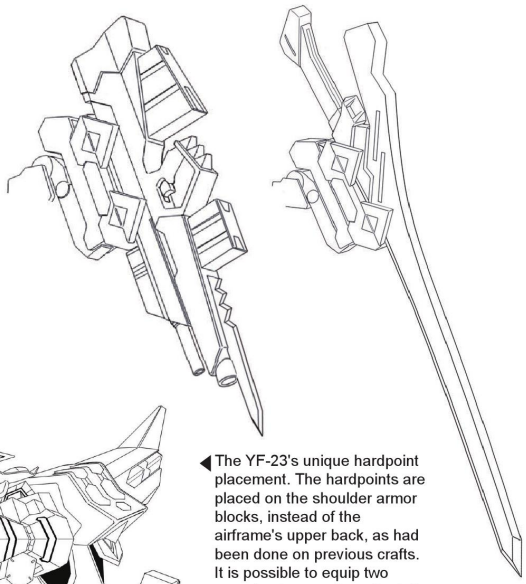
▼ Northrock YF-23 Black Widow II

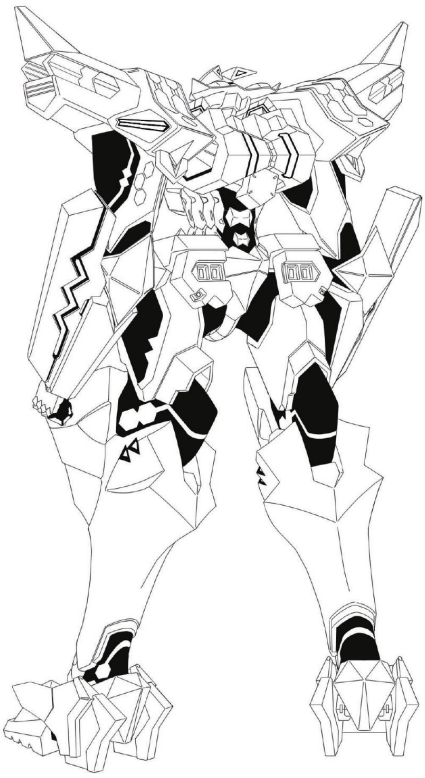
	Development Nickname	Main Engine
Craft 1	PAV-1 Spider	YF120-GE-100
Craft 2	PAV-2 Gray Ghost	YF119-PW-100



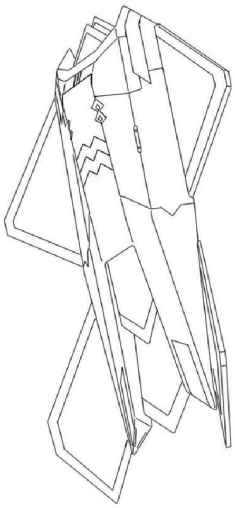
▶ XAMWS-24
(X Advanced Multiple Weapon System-24)

A conceptual prototype assault cannon designed with close quarters combat in mind. Compared to the AMWS-21, the rounds in a single magazine have increased by approximately 30% for the 36mm and approximately 20% for the 120mm.





◀ The YF-23's unique hardpoint placement. The hardpoints are placed on the shoulder armor blocks, instead of the airframe's upper back, as had been done on previous crafts. It is possible to equip two mount pylons each on the left and right sides, for a total of four. This was designed by considering situations where logistics would be difficult to secure.



United States: 3rd Generation Tactical Surface Fighter
YF-23 Black Widow II

The YF-23 Black Widow II was a prototype 3rd generation TSF developed by Northrock during the Advanced TSF (ATSF) Program.

Its overall abilities, including stealth capabilities, surpassed its competitor, the YF-22. However, due to the costs of procurement and maintenance, and because it was considered 'over-engineered' for the new direction of US military doctrine (※), its formal adoption was cancelled.

※ Once an outlook for the G-bomb's practicalization had been established, TSFs had their importance among the weapons structure lowered, and they were no longer considered the main weapon in anti-BETA strategy.

The YF-23 is brimming with equipment for close quarters dogfighting. These were added in anticipation of foreign sales, especially those resulting from renewal requests of countries that had adopted the F-15. Its design concept focuses on all-round combat ability, taking everything from defenses to hive capturing into account.

● Main Armament
- Prototype Assault Cannon XAMWS-24 (36mm/120mm)
- Prototype Assault Cannon Mounted Short Blade XM-9 (One for each assault cannon)
- Prototype Close Quarters Combat Melee Blade XCIWS-2B

● Fixed Armaments
- Close Quarters Combat Armor Spikes x2 (One on each shoulder block armor)
- Close Quarters Combat Short Blade x4 (Two in each upper arm's knife sheath)

※ It is possible to store a single large close quarters short blade in each

- Super Carbon Blade Edge x2 (One on each shin)
- Super Carbon Spike Vane x4 (Two on each foot)

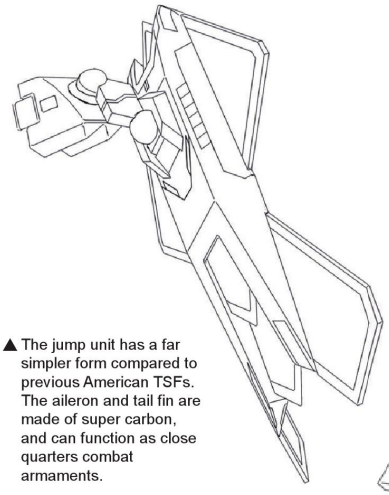
YF-23 Black Widow II

United States: 3rd Generation Tactical Surface Fighter

◀XCIWS-2B (X Close In Weapon System -2B)
Melee blades are an anomaly in US armaments.It lost its chance of formal adoption, after the YF-23 was rejected. Its design appropriates the manufacturing techniques of the CIWS-2A (Type 74 PB Blade).

The thruster nozzle, equipped to the waist ▶ area. If the YF-23 had been adopted, it would have been the world's first case of this type of thruster being used. The waist thrusters on the Su-37, the Su-47, and the Shiranui Second are clearly influenced by the YF-23.





▲ The jump unit has a far simpler form compared to previous American TSFs. The aileron and tail fin are made of super carbon, and can function as close quarters combat armaments.

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As previously mentioned, the abundance of fixed armaments, which indicate an expectation of close quarters combat, was revolutionary for the time. However, these would also contribute to the high price. Furthermore, although the main armaments were prototyped for use with the YF-23 in mind, everything from the sizes, calibers, and grip shapes were in accordance with the pre-existing standards. It could be assumed that the manufacturers had expected them to be formally adopted separately.

Northrock Grunnan (merged in 1994) sought to recover the losses generated by the YF-23 not being adopted. They began developing the YF-23N (successor of the F-14), for use in the Navy, and planned the marketing of a downgraded version to important allies.

However, the influence of the changing military doctrine had naturally spread to the Navy as well, and much like the Army, the Navy significantly slashed their TSF budget. Northrock Grunnan was left in a situation where they had their hands full with just maintaining the development of the A-12 Avenger.

They had almost decided to simply adopt a refurbishment plan of the F-18 (F-18E/F Super Hornet), which would be cheaper than replacing the F-14, and so, the YF-23N development proposal passed a short review period and was promptly rejected.

Marketing to important allies was their last hope, but this was forbidden by US Congress, due to fears that advanced secret technologies from the craft could be leaked. And so, the fate of the YF-23 was finally sealed.

Following this series of events, the YF-23 is often referred to as the 'TSF of misfortune'. However, its blood and soul continues to live on, but in a different form. Various countries across the world, especially those in Eurasia, which focus on close quarters combat, took influence from the YF-23's design, and so it continues to rule the battlefields as the tip of humanity's sword.

Despite not being granted a formal adoption and mass production, the YF-23's development is a feat that shines brightly in TSF history, and it has greatly contributed to the survival of mankind.

United States : 3rd Generation Tactical Surface Fighter
F-35 Lightning II

The F-35 Lightning II is a 3rd generation TSF that is currently being developed by a team led by American manufacturer Lockweed Mardin.

■Developmental History

The Joint Strike Tactical Surface Fighter Program (JSTSF) was commenced in 1990, after the conclusion of the ATSF program, which was responsible for developing the 'High' of the next generation High-Low Mix initiative. The JSTSF program sought to develop a stealth-capable next generation craft to replace the F-16 and F-18, which function as the 'Low' in the High-Low Mix initiative.

While the US Army requested a fairly standard renewal of the existing crafts, the US Navy and Marines sought a light weight and compact 3rd generation craft, which would also be easy to operate aboard a naval vessel.

In response, the US Senate Committee on Armed Services decided on the simultaneous development of Army, Navy, and Marine Corps versions, all of which would share a majority of their design features. This was a measure taken to cut costs, while also satisfying conflicting demands from the various military branches.

After the Royal Navy entered the program in pursuit of a next generation carrier based TSF, the US invited other Western Bloc nations to join the program. This was done with the goal of further lowering the costs of development, preserving the US influence over international TSF development, and to form a net around the Eastern Bloc in preparation for the transition to anti-human combat, which would occur after the conclusion of the Great BETA War.

With this, research began into blueprints for a craft capable of responding to a broad range of missions, such as anti-human combat, as well as anti-BETA combat within a hive. Where possible, these blueprints also incorporated requests from the invited nations for the craft to function as a successor to the F-16, F-18, and F-5 derivatives that they were using.

As part of the program, Boening and Lockweed Mardin worked concurrently on their respective proposals for the X-32 and the X-35. This led to the creation of an experimental craft from each, designed to undertake comparative trials.

Although the X-32 was more innovative in its design, and superior in its ability to share components between its Army and Marine Corps specifications, after several years of testing the X-35 was determined to be the preferred of the two. This was due to its superior cost-effectiveness, compact size, as well as its stability during operation.

The winning craft was then given an official designation, which was a first for an experimental craft in the X series, and Lockweed Mardin earned the rights for full-scale development. With this, international joint development of the craft began.

■Characteristics and Specifications

The F-35 inherited advanced stealth technologies (active/passive) and a high output jump unit engine that allows for high speed cruising, both of which were cultivated during the F-22's development.

Although the US Congress was initially opposed to these high specifications, they eventually approved them on the condition that export models would have downgraded specifications. This approval was assisted by the expectation that the F-35 would fill the gap created by the lack of progress in the F-22's deployment, caused by the repeated reductions in its procurement numbers after its price soared following the practicalization of the G-bomb.

Furthermore, fixed armaments for close quarters combat (super carbon blades) were selected as standard equipment on the craft in response to requests from various nations partaking in the project. This was a first for American made TSFs. This, combined with the craft's high mobility, meant it had attained excellent anti-BETA close quarters combat abilities in all aspects.

- F-35A

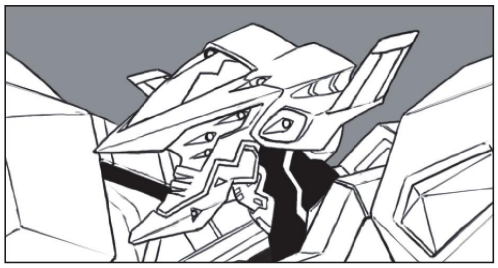
The standard specification model designed for the armies of the countries that participated in the program. The base grade craft has stealth capabilities while also being relatively inexpensive, and its high close quarters combat abilities give it an outstanding capacity for general anti-BETA combat.

- F-35B

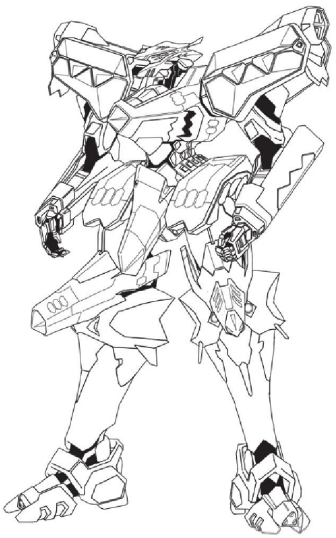
The US Marine Corps / Royal Navy specification model. With the premise of operating from a carrier or a warship, it adopts a cockpit hatch that opens horizontally, as well as the ability for the blades and armor blocks to be folded to reduce its storage profile. To allow for rapid takeoffs and landings on a ship in event of an emergency, it has been designed with enhanced VTOL capabilities through the improvement of the main jump unit's thrust and addition of auxiliary thrusters.

- F-35C

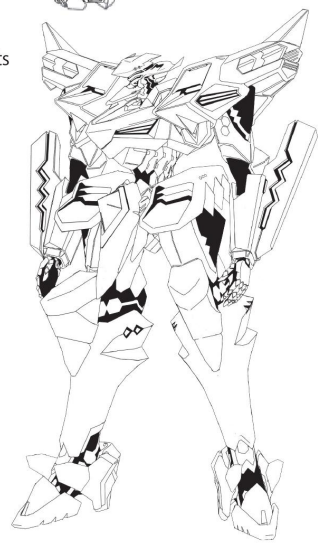
The US Navy specification model. While the basics are similar to the B model, in order to allow it to achieve its main purpose of carrying out transoceanic strikes from aircraft carriers, its cruising range and continuous operating time are extended through the use of enlarged propellant tanks and fuel cells. Besides improving the airframe's strength and durability to allow it to withstand catapult takeoffs, additional hardpoints for external combat support modules have been added. As a result of the reinforcements to the craft, its airframe and joints have the highest rating for dogfighting among the different models.



▲ Head sensor module
The craft adopts a compound eye style main sensor, which is a tradition of Lockweed Mardin.



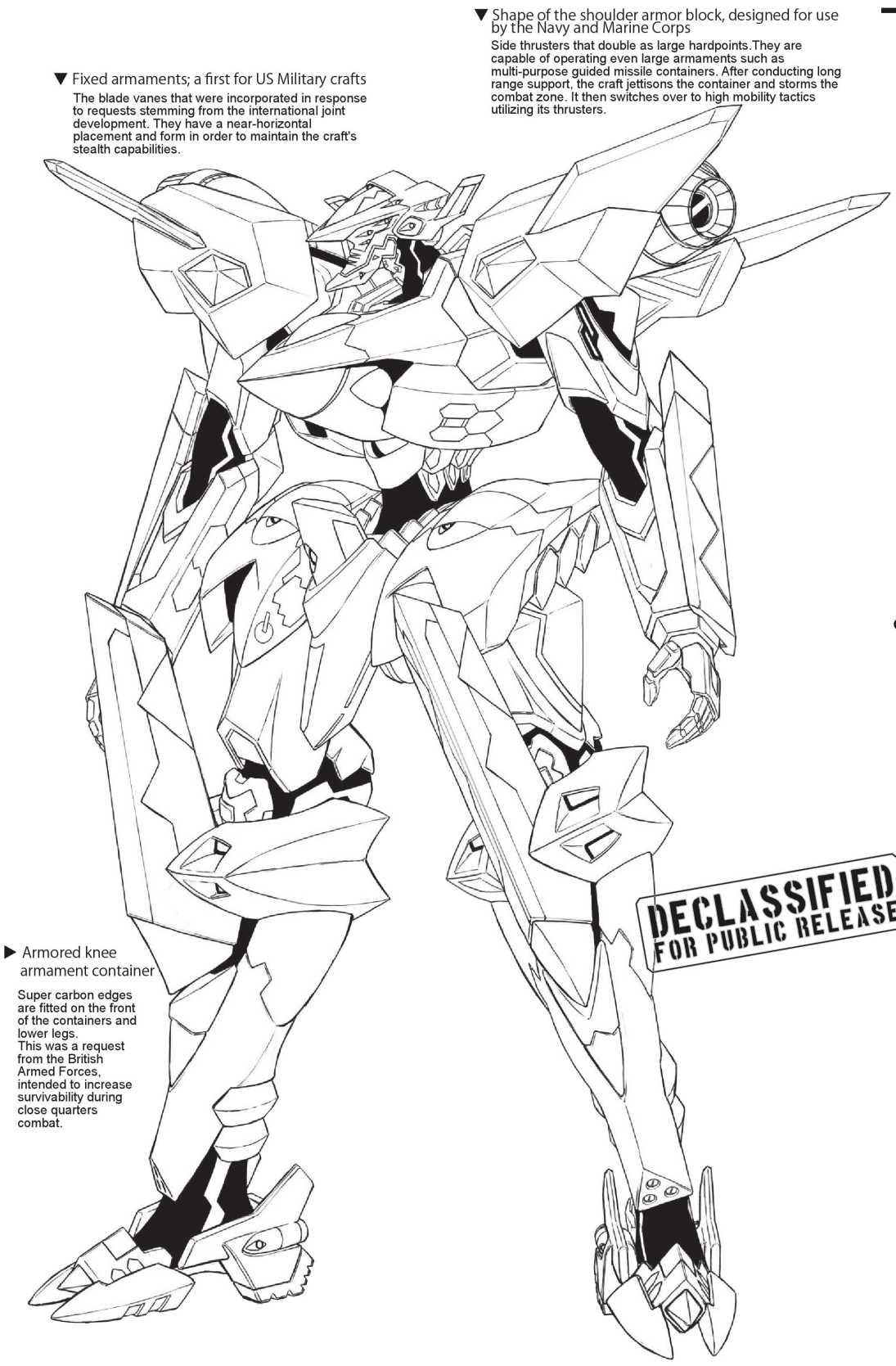
▲ ▶ American made 3rd generation stealth crafts
The F-22 Raptor, and the YF-23, which was defeated during the ATSF program. The F-35 inherited significant aspects from both these crafts.

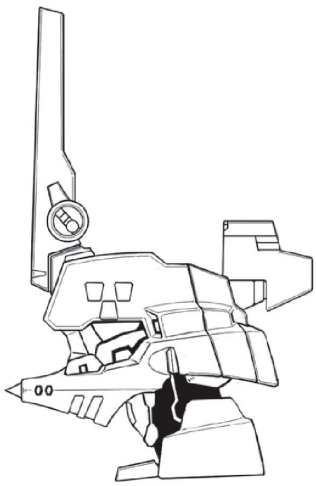


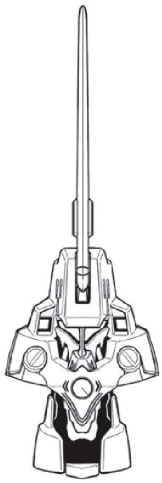
As of 2001, the operational testing and development for the different models are progressing concurrently. However, with budget cuts occurring from the frequent arguments that TSFs are obsolete, the start of its deployment has been delayed. In particular, the development of the F-35C has run into complications due to its very high requirements.

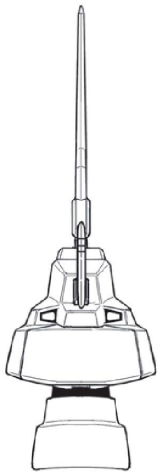
F-35 Lightning II

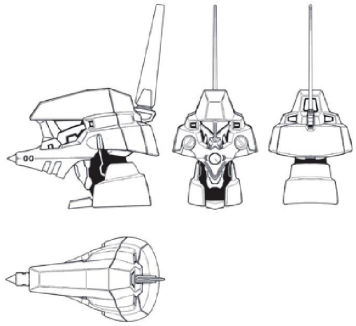
United States : 3rd Generation Tactical Surface Fighter





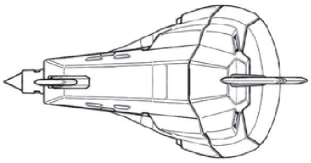






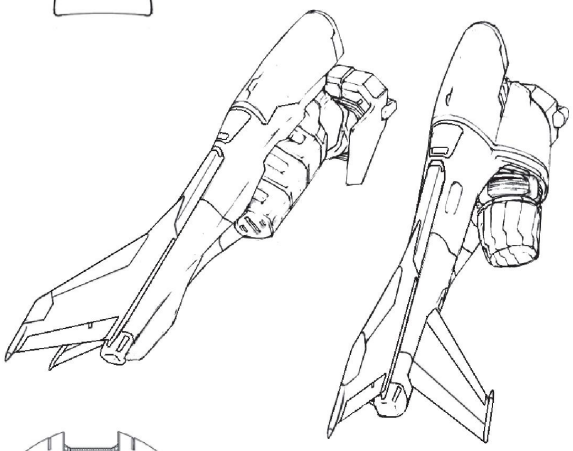
▲The head of the MiG-21 Balalaika

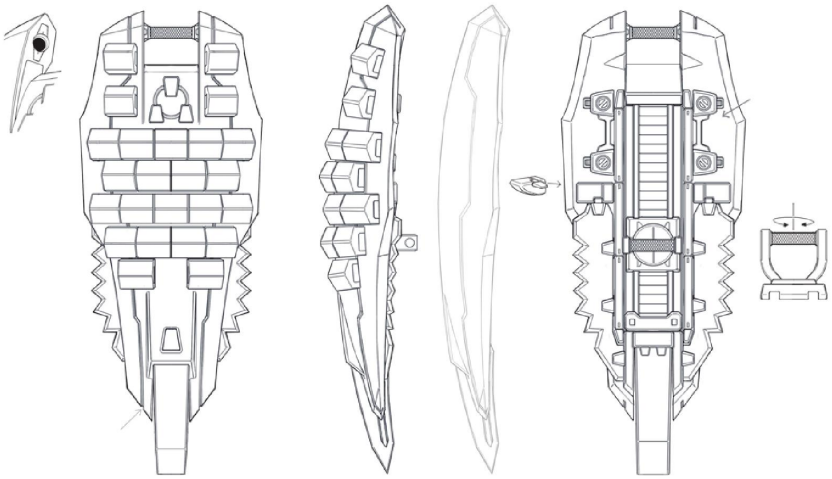
▲Details of the head



▶ Jump unit

The tail-fin shape is changed to an acute regression, to increase mobility by using aerodynamics





◀ DS-3 Multi-Purpose Supplemental Armor

A multi-purpose supplemental armor formally adopted by the East German Armed Forces.
Its primary use is as a defensive armament, capable of withstanding the maximum output of a Laser class attack for several seconds. However, it can also be used as a powerful close combat weapon because of the large spike on its lower point, the blades on its sides, and the multiple, shaped charge armor blocks installed on the surface of the shield.
First generation crafts, which lacked mobility, would in a sense use this as their primary close quarters combat weapon. It was considered an important piece of equipment - almost a lifeline.

Soviet Union & German Democratic Republic: 1st Generation Tactical Surface Fighter
MiG-21PF Balalaika

The MiG-21PF was an upgraded MiG-21 specifically for use by unit commanders. It boasted upgrades in communications and enemy detection functionality, in anticipation of new anti-BETA strategies.

These strategies included the use of AL missiles, which are able to create heavy metal clouds. Despite being a revolutionary anti-BETA weapon, able to alleviate the absolute threat of the Laser class, they create severe disturbances in communications.

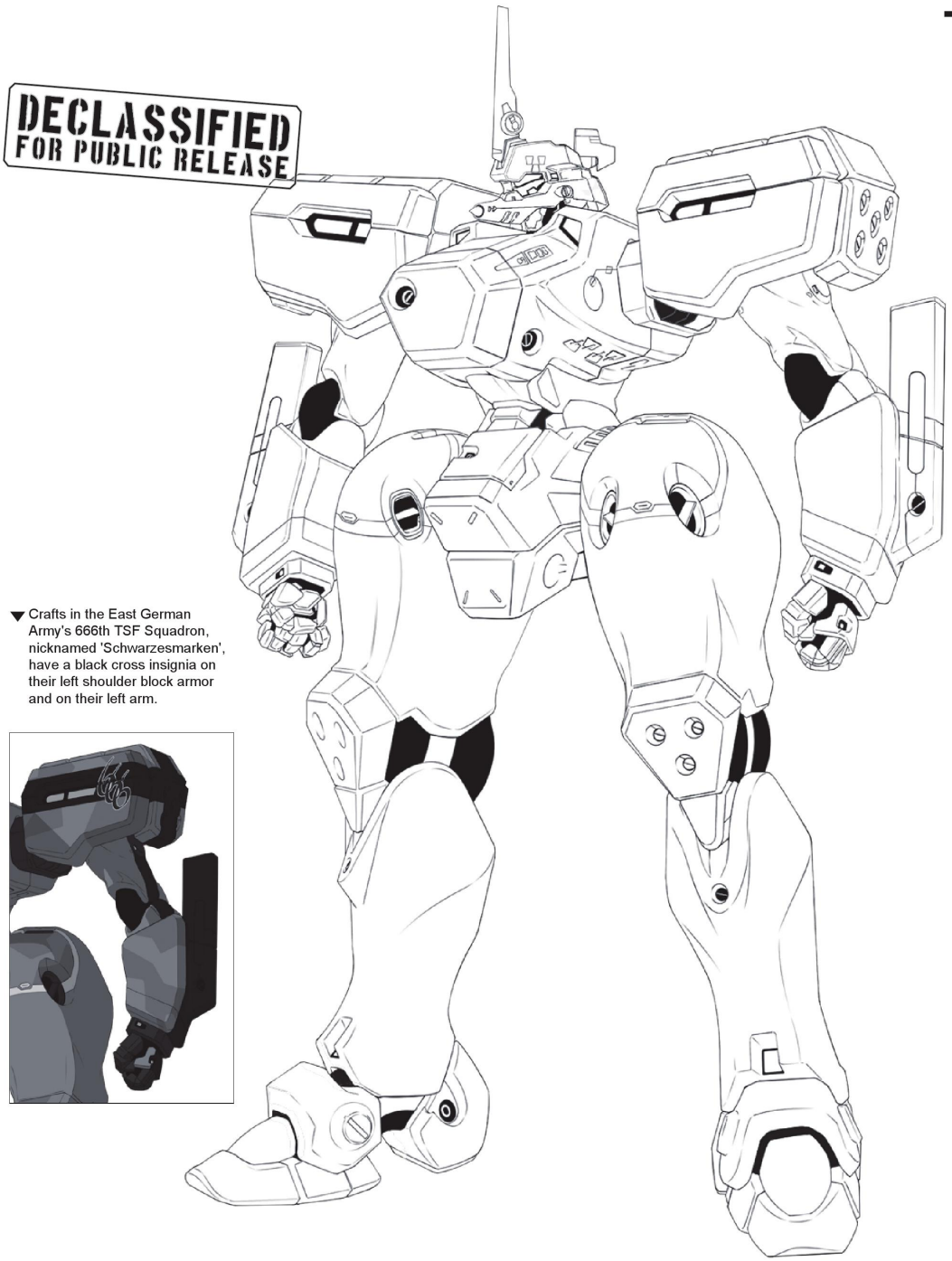
Specifically, maintaining a local data link even within a single squadron is difficult while protected by a combat-density heavy metal cloud.

Without the later technological advances such as the miniaturization and strengthening of equipment, or the establishing of the combat zone data link, many countries resorted to developing refurbishment kits consisting of large, high output sensors and antenna masts in order to improve communications and detection abilities. Although these weren't perfect, they would allow the units to narrowly secure a method of communication and information sharing in combat zones where AL missiles were being used.

East Germany and the Soviet Union collaboratively developed the MiG-21PF's anti-HMC system to remove the heavy metal interference, and it was later supplied to many countries operating the MiG-21.

MiG-21PF Balalaika

Soviet Union & German Democratic Republic : 1st Generation Tactical Surface Fighter



▼Crafts in the East German Army's 666th TSF Squadron, nicknamed 'Schwarzesmarken', have a black cross insignia on their left shoulder block armor and on their left arm.

■ The Development of the MiG-21

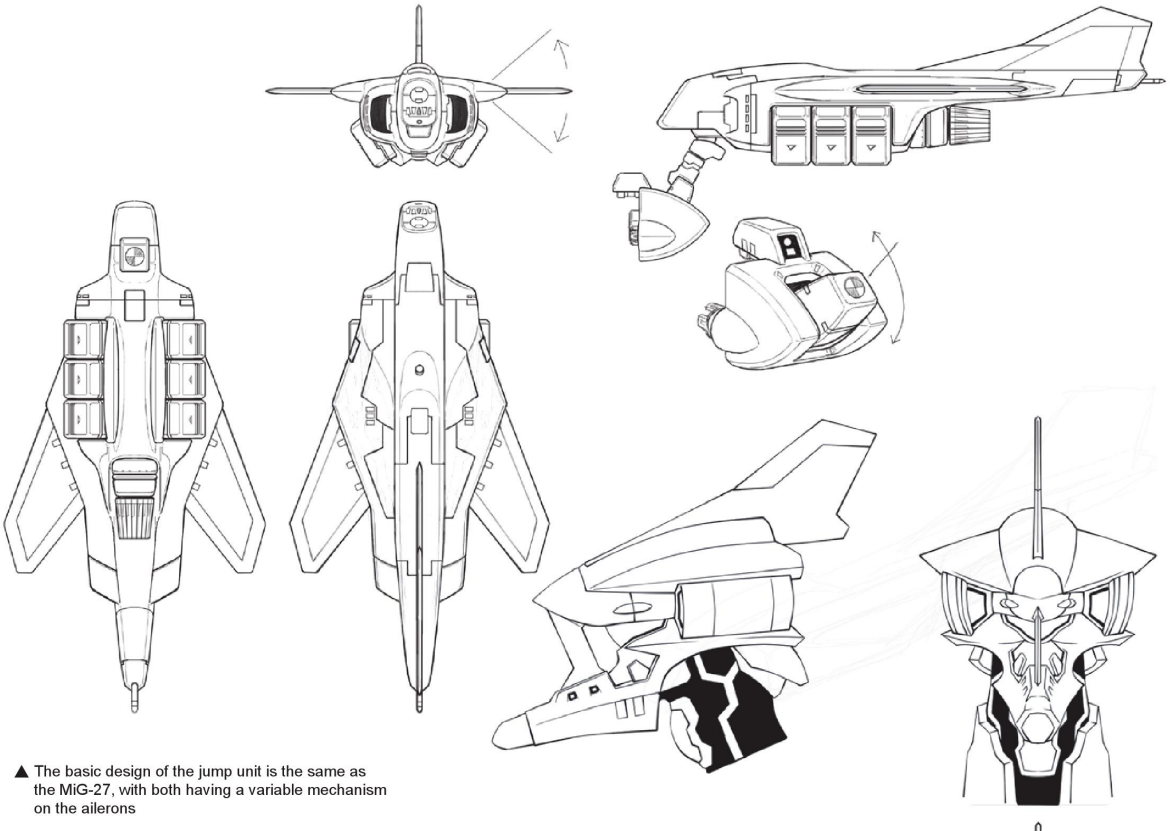
By 1973, the Soviet Union had been pressured to stop the BETA invasion and retake territory, and was in urgent need of an improvement in close quarters combat capabilities of the F-4R, which was a heavily armored craft more suited to bombardment and defense.

Furthermore, a tactic was employed where single TSFs would be shared among several Surface Pilots, who were constantly rotated out on shifts. This was to allow crafts to be constantly deployed on the front line, so that the constant pressure of the BETA could be resisted, but it also necessitated the simplification of frontline maintenance, and a focus on sustained operability.

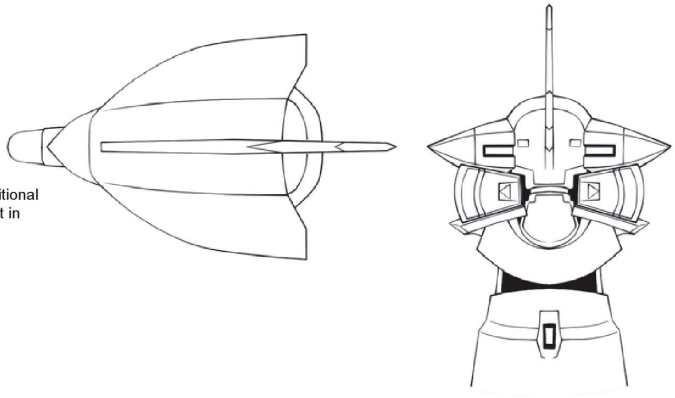
Mikoyam Guluvich Design Bureau conducted thorough reductions in size and weight, specifically focusing on the shoulders and legs. This was done in order to achieve an increase in maneuverability and mobility, and so that the craft could be easily adapted to the many terrains of its operative area, the vast expanse of the Soviet Union. These changes had allowed for an extensibility that would facilitate easy refurbishments for local specifications. These concepts, which would somewhat resemble the core values of the 2nd generation and beyond, demonstrated the foresight of the Soviet Union, as an intense combat zone on the front-most line.

Another notable feature is the design concept that has considered all possible situations that could arise in dense, close quarters combat. This design included reductions in size to the valuable head module, to lower its risk of being destroyed, as well as having it affixed with wire cutters (used to protect the main sensor), which would later become the trademark of all Soviet-made TSFs.

As the MiG-21 could be manufactured on most F-4 production lines, it was made a licensed production by countries in the Warsaw Treaty Organization. Crafts produced in East Germany since the first half of the 80s were of especially high quality and were supplied not only to the surrounding Eastern European countries, but also reverse-supplied to the Soviet Union, the developer country.



▲ The basic design of the jump unit is the same as the MiG-27, with both having a variable mechanism on the ailerons



▶ Both crafts are equipped with the traditional Soviet Union wire cutters, which assist in dense, close quarters dogfighting.

Soviet Union : 1st Generation Tactical Surface Fighter MiG-23 Cheburashka

The MiG-23 Cheburashka is a 1st generation TSF developed by Mikoyam Guluvich, and was deployed in the Soviet Army in 1980.

The MiG-21 Balalaika was claimed to have been the first domestically produced craft in the Soviet Union, but Western military sources identify it as simply being a refurbished F-4R. Therefore, the MiG-23 Cheburashka is internationally recognized as the Soviet Union's first purely domestic TSF.

As it was developed from the MiG-21 Balalaika, its basic structure such as its airframe and layout are not dissimilar to the F-4 Phantom. However, as it has actively introduced the design concepts of F-5 series crafts, which displayed high close quarters dogfighting capabilities on the European front, its appearance gives an impression of an F-5, but one size larger.

Its design adds additional emphasis to its mobile dogfighting abilities, by reducing the weight of its components and adopting a variable mechanism on the jump unit's aileron. From these, it has reached quasi-2nd generation capabilities, though it is still considered a 1st generation craft by much of the West. Even though it was an imitation of technologies originating from the US(※), it was a historical achievement in that all of its components were sourced domestically. This was what had truly launched independent TSF developments in the Soviet Union.

However, on the exhausted front lines of the Soviet Armed Forces, its ambitions ultimately backfired. Initially, it had been deployed to much fanfare. As a domestic craft optimized for dogfighting, it surpassed the success story of refurbishing the MiG-21 from the F-4R. Unfortunately, its ability to remain operational vastly underperformed that of the MiG-21 Balalaika, and it had become a nuisance, unnecessarily occupying the hangars.

At the time, the Soviet Armed Forces sorely lacked the systems, facilities, or skilled engineers to adequately conduct maintenance on the craft, with its complex variable mechanism. Additionally, the prolonged lack of resources would act as the final nail in the coffin, painting it with a further negative image.

Many front line forces could not overcome the disappointment of having their high expectations of the craft being left unmet. However, since they could not speak ill of a craft that had been given to them by the Party, it was only a cold comfort for frontline officers and personnel to grant the craft its nickname 'Cheburashka', which is a slow and clumsy character from a Soviet children's show.

The cutting edge craft, developed with the Soviet Union's prestige on the line, ended up hindering the front line. The Soviet Armed Forces Headquarters could not tolerate this, and so they ordered maintenance and supply systems to be quickly prepared for the craft. They also ordered Mikoyam Guluvich to simplify the craft's maintenance routine so it could be more suited to circumstances on the front line.

MiG-23 Чебурашка

Soviet Union : 1st Generation Tactical Surface Fighter



▶ Forearm Knife Sheath
MiG-23 equipped with the CIWS-1A.

The initially deployed model was recalled from the front lines and underwent makeshift repairs before being cheaply sold to allied nations in Eastern Europe, Asia, and Africa. In this sense, it was able to be re-purposed as a strategic and diplomatic tool to spread Soviet influence.

Later, the MiG-23 Cheburashka would receive several more refurbishments, improving its overall capabilities and maintainability, and would continue to be used on the front line, even after the deployment of its redesigned successor, the MiG-27 Aligatori.

From 1999, the MiG-23 Cheburashka has been slowly retired by the Soviet Armed Forces, to be replaced by the Su-27 Zhuravlik and Su-37 Terminator. However, Mikoyam Guluvich is still developing upgrade kits, in anticipation of foreign demand. Furthermore, with the shifts in US anti-BETA strategy, western arms manufacturers have proposed modernization plans to African countries that operate the MiG-23.

Almost as soon as it was deployed to the Soviet Union Armed Forces, the MiG-23 Cheburashka in its original form was offered to East Germany, which was their most important military ally. There, its reception was significantly different.

The East German military's MiG-23s were able to be supported by the high technical capabilities of German maintenance engineers, and were able to return to operations after maintenance far sooner than those in the Soviet Armed Forces, while also displaying far greater combat capabilities. It gained a reputation as a craft that frontline Surface Pilots envied.

When Soviet leadership caught wind of the incredibly high operational rate, they began to think that East Germany had violated a bilateral treaty forbidding them from independent weapons development. This even went as far as causing a ridiculous episode of the Soviet Union going to the trouble of importing the East German MiG-23 to dismantle and investigate it.

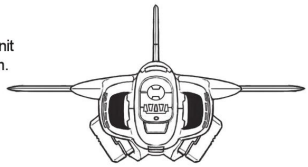
The MiG-23 Cheburashka, which had received an undeservedly poor reputation in its homeland, was able to more than adequately demonstrate its latent abilities in East Germany. Due to its high combat appraisals, the second delivery and onwards would be prioritized to the forces of the Ministry for State Security (Stasi).

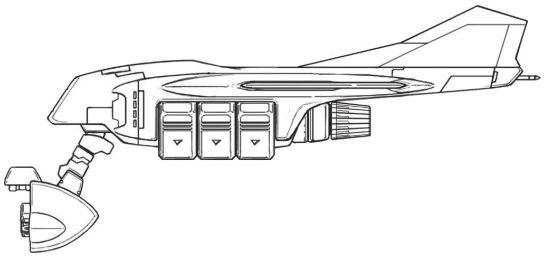
In East Germany, the armed police force is traditionally better equipped than UN forces, even though the UN are at the forefront of anti-BETA combat. This has been the case since the establishment of East Germany, since Stasi is responsible for policing all anti-state actions such as defections and disobeying orders. Their forces are always armed with the latest, cutting-edge weapons in order to crush any uprising, even from the frontline troops.

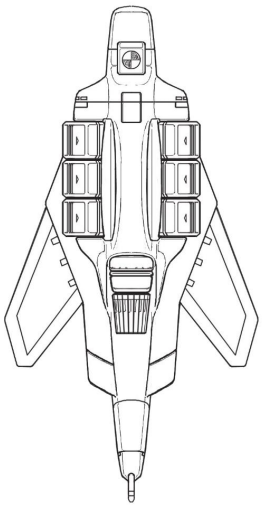
(※) The control block is a genuine license production from Markin Berger. The variable wing mechanism has been plagiarized from European manufacturer Palavia Industrial.

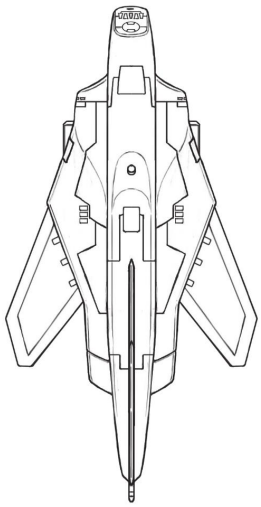
▶ Jump unit

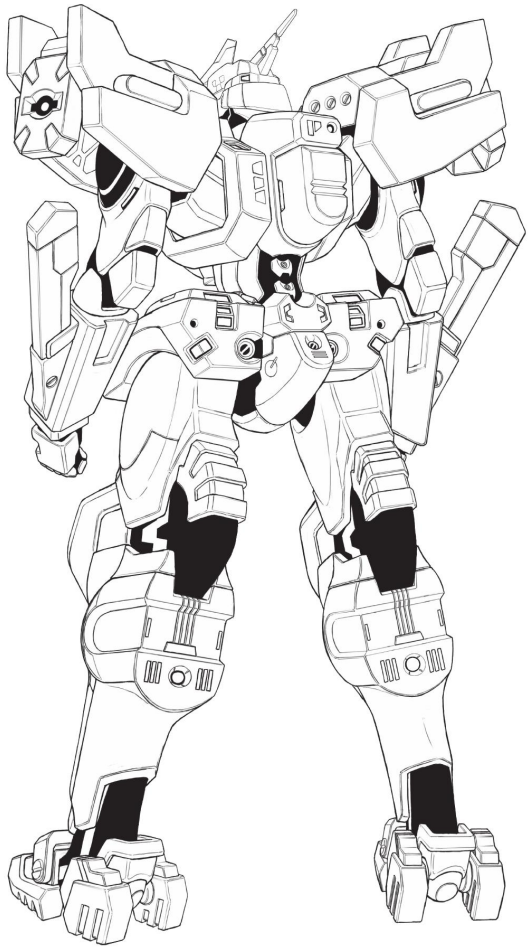
Shared with the Mig-23, this jump unit also has a variable wing mechanism.

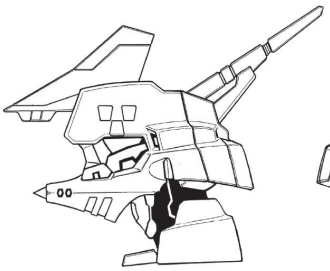




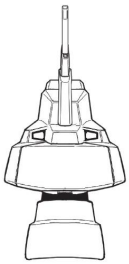


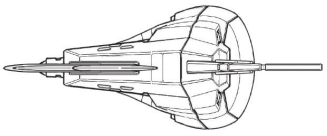












▲ Head Module

A one-off specification, where a MiG-23's main sensor mast has been fitted to the front of the MiG-21PF's head. The enlarged sub sensor mast, which has been appropriated from a reconnaissance support vehicle, has been placed at an angle that takes into account the effect it has on aerodynamic properties.

German Democratic Republic : 2nd-Generation Tactical Surface Fighter

MiG-23 Kai Cheburashka

■Summary

The MiG-23 Kai is the common name of the field-improved MiG-23. It was a 2nd-generation craft made when rebel forces under Lieutenant General Heim plundered and refurbished a MiG-23 that belonged to the East German armed police force 'Werewolf Battalion'.

Although the improvements made were nothing more than a simple swap of the heavily damaged head module to a stock part from an MiG-21PF, they forcibly replaced the sensor mast of the MiG-21PF with the stronger one from the MiG-23. Hence, its appearance greatly differs from both the MiG-21 and the MiG-23.

■Original Verion's History

The MiG-23 Cheburashka was the Soviet Union's first domestically produced 2nd-generation TSF, designed by Mikoyam Guluvich. Compared to the MiG-21 Balalaika, which it replaced, it boasted significant weight reductions in order to increase its mobility.

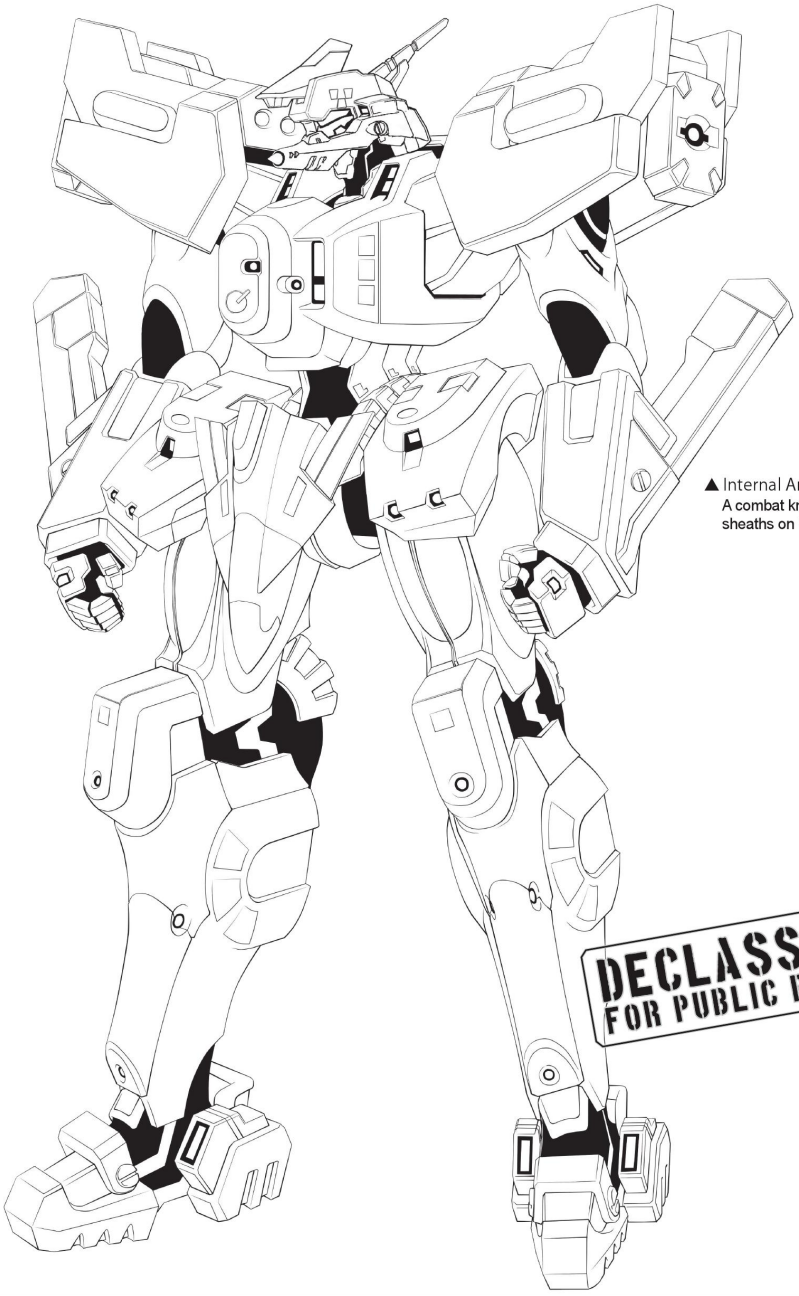
Furthermore, it was loaded with ambitious designs, such as a jump unit with a variable wing mechanism, which was a trend in advanced TSF technology at the time. However, its structure was little more than a simple plagiarism of craft preceding it, such as the F-14 Tomcat or the F-5E Tornado. Ultimately, the complex structure and control mechanisms, and the craft itself required specifications beyond the industrial and technological capabilities of the Soviet Union at the time, so the program hit a wall.

Meanwhile, Western countries were moving onto the development of 3rd-generation craft, so by the time of its adoption, the MiG-23 Cheburashka was already obsolete, though it still managed to greatly contribute to the mobility of the Soviet Armed Force's frontline forces. However, its complex structure caused problems in maintenance, and its operational rate on the front line dropped to 70%. The Soviet Armed Forces were concerned over the situation, and quickly decided upon the development of the MiG-27, which would be a drastic refurbishment. After this, the MiG-23 Cheburashka played an active role as a strategic resource, by being exported to Warsaw Treaty Organization members that were under Soviet influence, both in politics and military.

Meanwhile, the Soviet Armed Forces leadership had their eyes set on the operational rate of the East German Army's TSFs, which had been greatly surpassing their own, ever since the MiG-21. They released design secrets of the MiG-23 to East Germany, and in turn requested for refurbishments and redesigns. The

MiG-23 Cheburashka

German Democratic Republic: 2nd Generation Tactical Surface Fighter



▲ Internal Armaments
A combat knife is held within the knife sheaths on both of the craft's forearms.

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MiG-23MLD would be created from the resulting East German refurbishment plans, and it became the developmental test bed for the MiG-27, which would soon be their masterpiece.

In East Germany, the MiG-23 Cheburashka was deployed to the armed police force of Stasi, which had deep ties with the KGB. Its operations involved border protection and peacekeeping.

■Characteristics

Since the head module was retrofitted and the sensor mast was relocated, the aerodynamic properties of the upper part of the airframe were altered, creating a mismatch with the attitude control references in the OS. This resulted in frequent and sudden displays of unstable behavior.

Even as a makeshift refurbishment on the front line, such defects would not be tolerated in the mainline equipment of regular forces. However, it was well-received by the rebel forces, who anticipated anti-TSF combat, where this supposed defect actually disrupted the OS positional predictions of enemy TSFs. As a result of being operated by a Surface Pilot with high levels of craft control techniques, this would become the iconic craft of the rebel force.

The craft's color was repainted from Stasi's exclusive color to the camouflage of the 666th Squadron. The left shoulder block displays the unit's number, and the left arm is painted with their symbol, a cross.

■Background

Originally the craft was piloted by Lieutenant Lise Hohenstein of the armed police force, but was shot down and taken as spoils of war by 2nd Lieutenant Theodor Eberbach of the 666th Squadron. Technology Lieutenant Otto Strauss, the mechanic for the 666th Squadron was responsible for the refurbishment of the craft.

In order to meet the schedule for the operation to reclaim East Berlin, only a short period of time was set aside to master the craft, but Theodor Eberbach was able to grasp the craft's characteristics with his natural talent. During the operation to retake East Berlin, it faced the state-of-the-art MiG-27 in combat, and was able to exceed its abilities. Some of the combat was relayed by East German state-run broadcasts, and many East Germans witnessed it.

MiG-31 Плазмя-Лиса

Soviet Union : 2nd Generation Tactical Surface Fighter

Soviet Union : 2nd Generation Tactical Surface Fighter
MiG-31 Plamya-Lisa

The MiG-31 Plamya-Lisa is a 2nd generation TSF developed by Mikoyam Guluvich.

■ Development History

In response to requests from the military, which had grown worried over the severe decline in Surface Pilot numbers as a result of their inferiority to the BETA forces, the Soviet leadership sought to revise their anti-BETA strategy, which had revolved around nuclear weapons. They then ordered the domestic design bureaus to develop a craft with a higher survival rate.

Mikoyam Guluvich began to develop the MiG-31 by upgrading the MiG-25 so that it could use the AIM-54 Phoenix, an American anti-BETA cluster missile, instead of guided nuclear missiles.

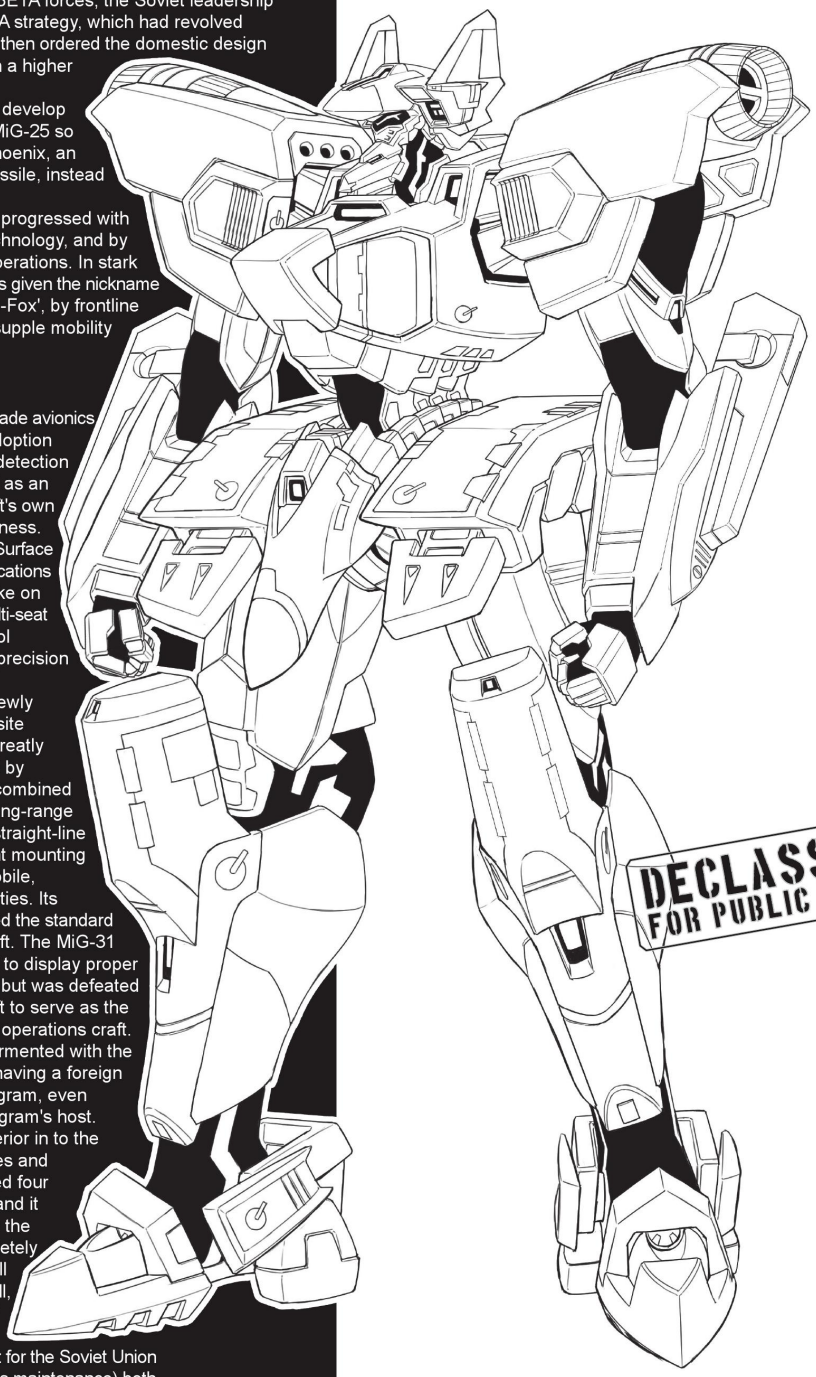
The refurbishments steadily progressed with the introduction of Western technology, and by 1987 it commenced combat operations. In stark contrast to its original craft, it was given the nickname 'Plamya-Lisa', meaning 'Flame-Fox', by frontline Surface Pilots who valued its supple mobility and fire power.

■ Characteristics

The retrofitting of American-made avionics accompanying the AIM-54's adoption allowed for greater abilities in detection and electronic warfare, as well as an astonishing increase in the craft's own capabilities, like its responsiveness. In order to ease the burden on Surface Pilots from the increased specifications of the craft, and its ability to take on additional roles, it adopted a multi-seat control unit. With the fire control specialist in the rear seat, the precision of attacks was also increased.

Furthermore, by adopting newly developed lightweight, composite armor, the craft's weight was greatly reduced. Its mobility increased by approximately 40%, and this, combined with the base craft's existing long-range invasion abilities, high-speed straight-line movement, and high armament mounting abilities, resulted in greater mobile, close quarters dogfighting abilities. Its combat survivability had reached the standard of 2nd-generation Western craft. The MiG-31 was the first Soviet Union TSF to display proper 2nd-generation specifications, but was defeated by the F-14 Tomcat as the craft to serve as the basis of Alternative 3's special operations craft. With this, the craft would be tormented with the unprecedented humiliation of having a foreign craft chosen over it for the program, even though it was made by the program's host.

Although it was certainly inferior in to the F-14 Tomcat in individual values and specifications alone, it equipped four more missiles on the AIM-54, and it was far cheaper to procure, so the MiG-31 cannot be called completely inferior when comparing overall specifications of the two. Overall, the UN's forceful settlement of the situation, and Sufoni's rapid progress in procuring equipment for the Soviet Union (such as taking on the F-14AN3's maintenance) both led to the suspicion that the decision to adopt F-14 over the MiG-31 was politically motivated.

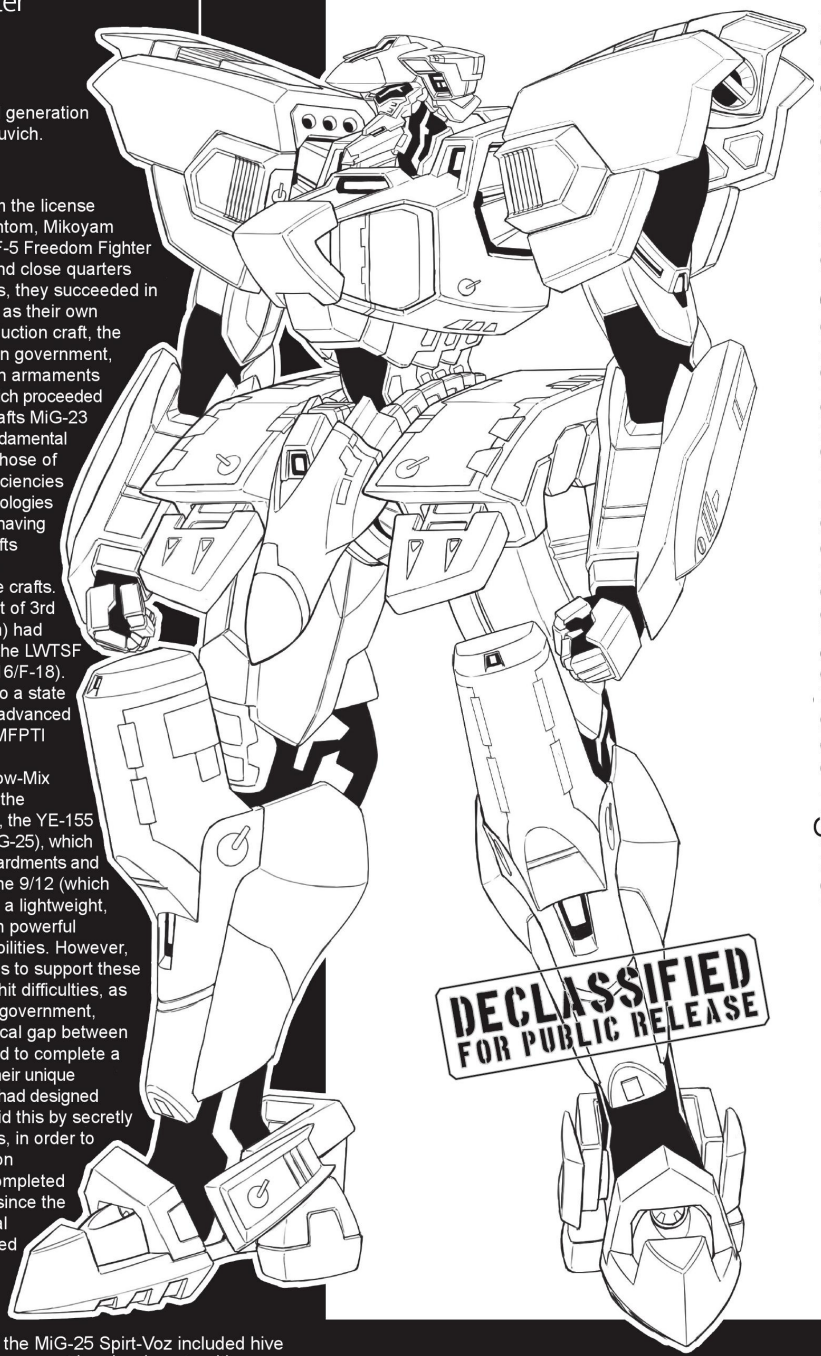


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MiG-25 Спирт-Воз

Soviet Union : 2nd Generation Tactical Surface Fighter

MiG-25 Spirt-Voz



The MiG-25 Spirt-Voz is a 2nd generation TSF developed by Mikoyam Guluvich.

■ Development History

Having gained experience from the license production of McDaell's F-4 Phantom, Mikoyam Guluvich began researching the F-5 Freedom Fighter in regards to its maintainability and close quarters dogfighting capabilities. From this, they succeeded in developing the MiG-21 Balalaika as their own refurbishment of the license production craft, the F-4R. Backed by the Soviet Union government, which disliked sourcing their main armaments from old enemies, Mikoyam Guluvich proceeded to develop the 2nd generation crafts MiG-23 and 27, even while still sharing fundamental technologies and concepts with those of McDaell. However, with their deficiencies in fundamental development technologies and the loss of infrastructure from having to continually fall back, those crafts would never be able to reach the specifications of Western mainline crafts.

At the same time, development of 3rd generation crafts (ATSF Program) had commenced in the US, following the LWTSF Program (development of the F-16/F-18). This induced the Soviet Union into a state of panic, and so it started its own advanced TSF development program, the MFPTI program, in response.

A Soviet version of the High-Low-Mix Initiative had commenced, using the self-contained hive capturing craft, the YE-155 (which would later become the MiG-25), which boasted abilities for support bombardments and high speed assaults, alongside the 9/12 (which would later become the MiG-29), a lightweight, highly mobile multi-role craft, with powerful mid-to-close range dogfighting abilities. However, with no development technologies to support these high specifications, the program hit difficulties, as expected. The Communist Party government, frustrated by the huge technological gap between themselves and the US, managed to complete a re-design of the F-15, based on their unique operational concepts, just as they had designed their MiG-21 from the F-4. They did this by secretly salvaging remains of F-15 Eagles, in order to research American 2nd generation technologies. The Ye-155 was completed as the first full scale Soviet TSF since the MiG-21, and was given the formal designation MiG-25. It commenced frontline deployment in 1987.

■ MiG-25's Characteristics

The required specifications of the MiG-25 Spirt-Voz included hive capturing abilities that would use support bombardments with nuclear weapons, and high speed assaults. Hence, it greatly differs from its reference craft, the F-15 Eagle, which focused more on mobile, mid-to-close range bombardment.

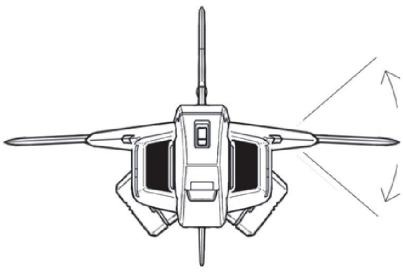
In short, its specifications were designed to allow it to reach its goal, the stab of a hive, in the shortest distance possible - a straight line. To achieve this, it needed a high output jump unit, strong enough to carry large, nuclear, guided missiles, as well as the ability to use those nuclear weapons for wide area suppression, so that it could break through the combat zone and reach the stab. Once the stab had been infiltrated, it would unleash waves of nuclear attacks to suppress the hive in a short amount of time.

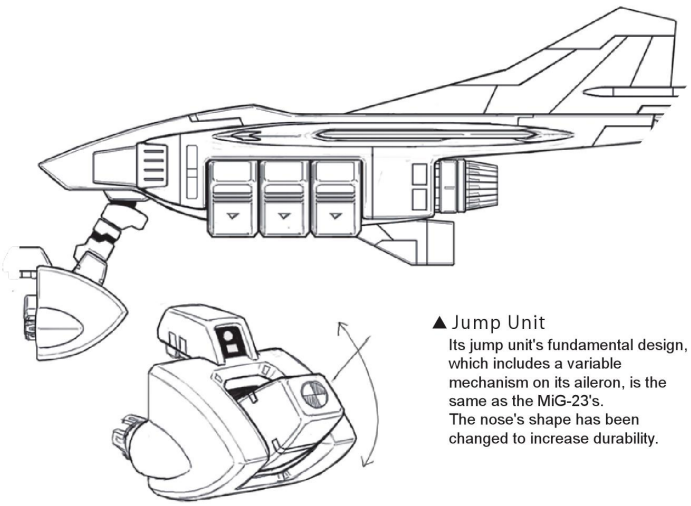
Due to this, the ability to respond to close quarters dogfighting, which had been a major cause of losses, was largely not taken into account, and the craft was enlarged 20% compared to the F-15 Eagle.

Its increased size was to give it more frontal armor and airframe durability (hardpoints on both forearms are equipped with specially designed multi-purpose supplemental armor), as well as high speed cruising abilities and cruising distance, in order to break through BETA groups around a hive and in the stub.

The nickname 'Spirt-Voz' means 'Alcohol Wagon' in Russian. The name was given to the craft on its first operation in combat, which was essentially a suicide mission with nuclear weapons, where unit commander Lieutenant Alseni Bogdanov gave what little vodka was left to all of the deployed Surface Pilots. However, even after this, the MiG-25's survival rate would remain extremely low regardless of the type of mission. Therefore, a myth persists that the origin of the nickname is derived from the fact that you won't have the bravery to pilot it unless you're extremely drunk.

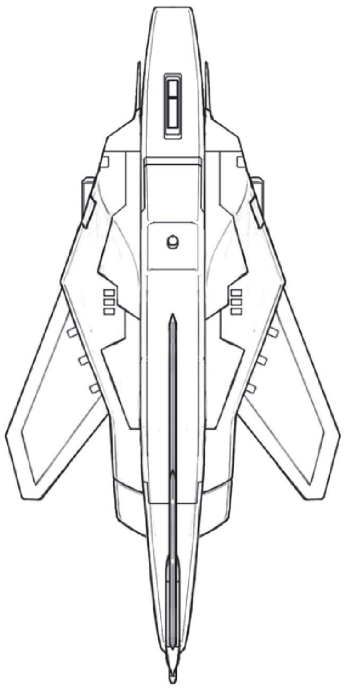
Furthermore, Surface Pilots originating from the air force mock it by calling it the 'SS25', based on the Soviet Armed Force's ICBM (Intercontinental Ballistic Missile) SS24.

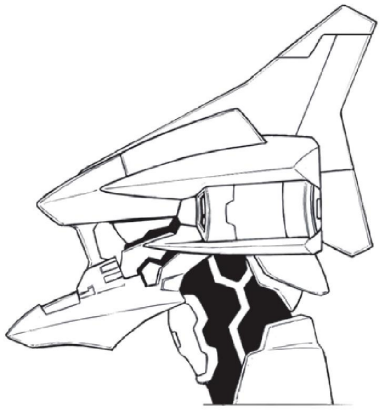


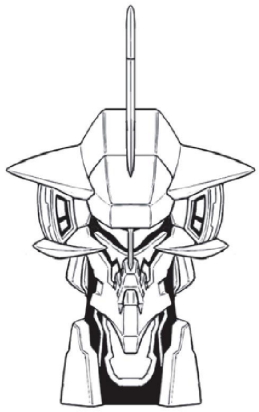


▲ Jump Unit

Its jump unit's fundamental design, which includes a variable mechanism on its aileron, is the same as the MiG-23's.
The nose's shape has been changed to increase durability.

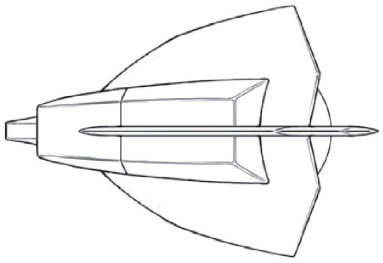


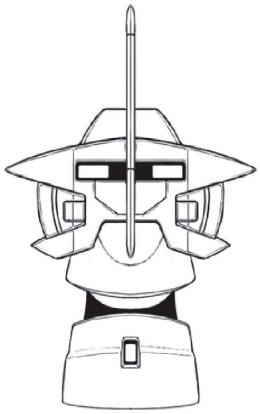




▶ Head details

The MiG-27 has had its wire cutter reduced in size in order to increase mobility





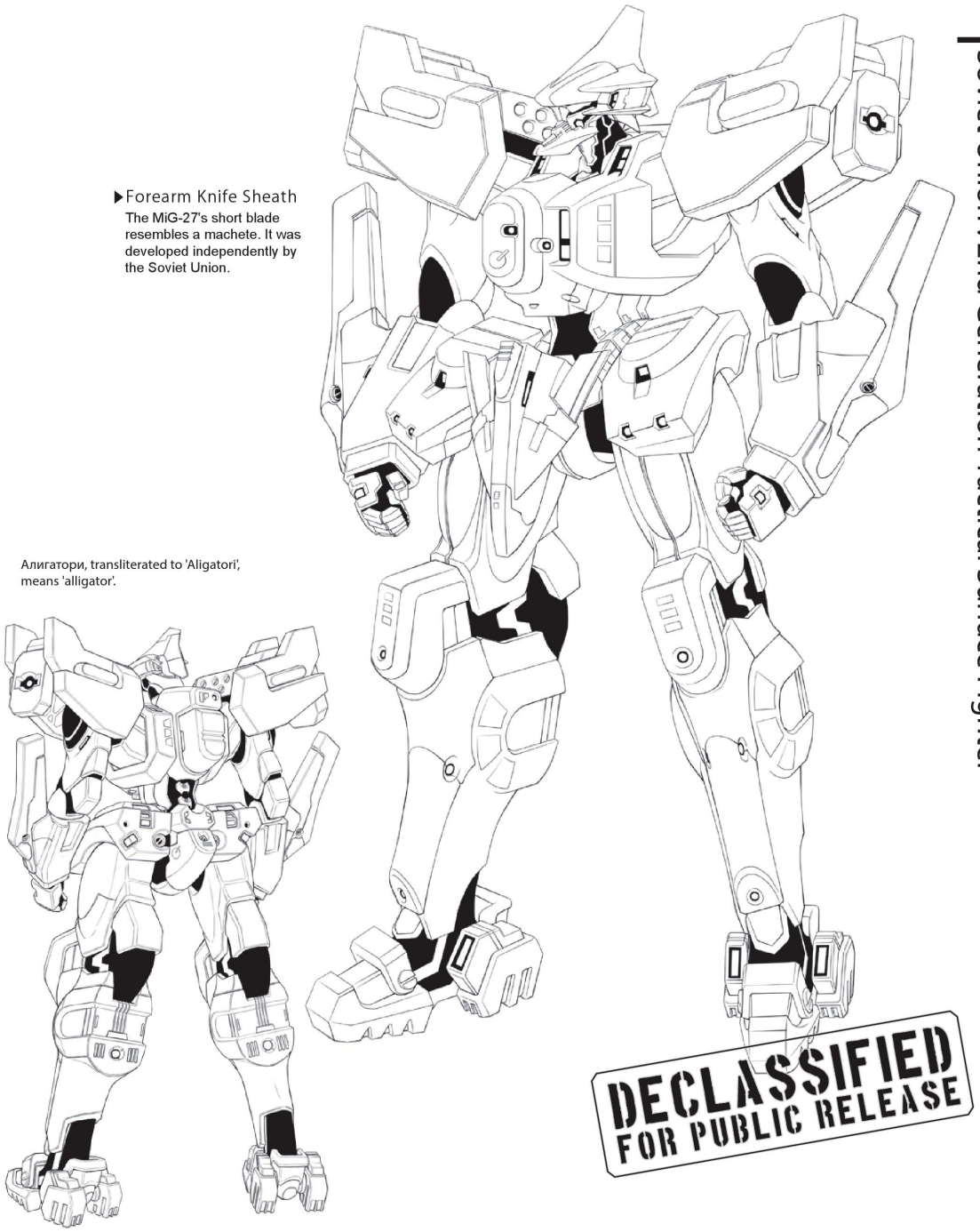
Soviet Union : 2nd Generation Tactical Surface Fighter
MiG-27 Aligatori

The MiG-27 Aligatori is a 2nd generation TSF developed by Mikoyam Guluvich, and was deployed across the Soviet Armed Forces in 1983.

In 1981, there was a deep seated distrust of the MiG-23 Cheburashka by frontline personnel of the Soviet Union. This resulted from the poor state of the initially deployed model, due to it being rushed to the front lines by the military HQ, as well as the poor conditions it was operated under, worsened by a lack in experienced support crew.
Even after the deployment of a refurbished model that had better maintainability, it was difficult to erase this stigma against it, despite the improved combat results. In fact, calls for further upgrades to be made on the MiG-21 Balalaika were pouring in from the front lines.
In response to these calls, Mikoyam Guluvich directed attention to the combat results of the East German Army's MiG-23, stating that there were no issues with the craft itself. However, this inevitably pointed out the inferiority of the Soviet Armed Forces on the front lines and left the military leadership bitterly resentful, as they had lost face.
As the Western countries prepared to deploy their 2nd generation crafts, the Soviet Union tried desperately to avoid having to extend the life span of their 1st generation crafts. While secretly ordering Sufoni to develop a new replacement craft, they ordered Mikoyam Guluvich to submit a proposal to resolve the situation.
Mikoyam Guluvich then presented further upgrades on the latest model at the time, the MiG-23M, which aimed to increase its operative time and its motility, while greatly changing its exterior to strengthen its communications and

MiG-27 Алигатори

Soviet Union : 2nd Generation Tactical Surface Fighter



▶Forearm Knife Sheath
The MiG-27's short blade resembles a machete. It was developed independently by the Soviet Union.

Алигатори, transliterated to 'Aligatori', means 'alligator'.

detection abilities. These proposed changes were of a magnitude closer to a re-design, rather than an upgrade.
This proposal primarily focused on removing the stigma of the craft, so changes were made to the form of various components, especially to the head and forearms, which had been newly designed from scratch, as these are the features that most noticeably sway the impression of a craft.
Furthermore, when it was found that almost 90% of this craft would be built with new parts, it was given the formal designation MiG-27 Aligatori by Soviet military headquarters in order to completely distance it from the MiG-23 Cheburashka.

To prevent the possibility of this new craft being stigmatized again, Mikoyam Guluvich only delivered the craft to the Soviet Armed Forces after extensive combat trials with advance mass production models in East Germany.
As a result of their efforts, the MiG-27 Aligatori earned its appropriately high praise from frontline personnel. However, with the deployment of the world's first 2nd generation TSF, the F-14 Tomcat, only a year before, the MiG-27 was mocked as being a cutting-edge craft that was old fashioned from the day of its deployment.
It is said that these thorough preventative measures, their unfortunate results, and Mikoyam Guluvich's earlier attempts to rectify the mistakes of the MiG-23 were all contributing factors as to why they are treated poorly in the Soviet Armed Force's formal TSF selections.

Although the MiG-23 and 27 series were mired in unfortunate circumstances, they continued to support the core of Eastern Bloc militaries and the Soviet Armed Forces themselves up until the 1990s, alongside the MiG-25 Spirt-Voz and MiG-31 Plamya-Lisa. As of 2000, with the introduction of TSFs with fully-fledged specifications such as the Su-27 Zhuravlik, the Su-37 Terminator, and the MiG-29 Lastochka, the MiG-23 and 27 would still make up about 40% of the Soviet Armed Force's TSFs, as a testament to their reliability and maintainability.

MiG-29 OVT Fulcrum

Soviet Union: 2.5th Generation Tactical Surface Fighter

Soviet Union: 2nd Generation Tactical Surface Fighter
MiG-29/29OVT/35 Lastochka

The MiG-29 Lastochka is a 2nd-generation TSF developed by Mikoyam Guluvich.

In 1984, Mikoyam Guluvich attempted to redeem themselves from the disasters of the MiG-23 Cheburashka and the MiG-27 Aligatori, which were already considered outdated at the time of their respective deployments, by setting out on advanced TSF research and development, influenced by the ATSF Program. However, there was too great of a gap between them and the US in science, technology, and accumulated development knowledge, resulting in a stalling of the program. After several years of fundamental research, they were forced to adopt a new direction, which plagiarized the US Armed Forces' concept of the High-Low-Mix Initiative.

Mikoyam Guluvich developed two craft based on this initiative, the Ye-155 (later MiG-25) and the 9/12 (later MiG-29). The Ye-155 was a large craft, specialized for self-contained hive capturing with abilities in support bombardment and high-speed assaults, and was developed from F-15 Eagles salvaged from battlefields without permission. The 9/12 was a lightweight, high-speed, multirole craft with powerful medium to dense close-quarters dogfighting abilities, and was developed from data on the YF-16 and YF-17, gained through espionage.

The development of the Ye-155 progressed steadily, and the craft would reach combat deployment in 1987 as the MiG-25 Spirt-Voz. Soon after, in 1990, the refurbished craft, the MiG-31 Plamya Lisa, saw combat deployment. However, what the front line needed most at the time was a craft with high close combat capabilities, since both the MiG-25 and 31 were not highly regarded in these aspects.

With each passing day, the military began to expect more and more of the 9/12, but its development faced difficulties, as there was no physical reference craft for it to imitate. Furthermore, Soviet military leaders, too eager to secure G-elements, ordered their own independent hive capturing operations, with the MiG-25 and 31 as the main force. With these ending in complete failure, Mikoyam Guluvich Design Bureau was left on the ropes.

The bureau's leaders had acquired complete F-16 Fighting Falcons and F-18 Hornets in top secret from the Communist Party of the Third United Front, and sought to overcome this precarious situation by making progress on the development of the 9/12. However, in 1992, Sufoni dealt another blow to Mikoyam Guluvich, with the combat deployment of their large, multirole TSF, the Su-27 Zhuravlik, ending Mikoyam Guluvich's monopoly of mainline craft in the Soviet Armed Forces.

Although unofficial, the Su-27 was in fact a collaborative development with Western manufacturers, and it would become the first Soviet-made multirole TSF that would meet the global standard. Since the Su-27 surpassed both the MiG-25 and 31 in many aspects and also possessed strong close-quarters dogfighting abilities, its formal adoption was thought to be the end of the 9/12's development. However, Mikoyam Guluvich were graced by an unexpected stroke of luck. During the combat operation of the Su-27's initial model, Sufoni ran into hardware troubles typical of a newly appointed manufacturer. This caused a significant decline in the operational rate of the Su-27, earning the distrust of military leaders, and resulting in a large reduction in planned procurement numbers.

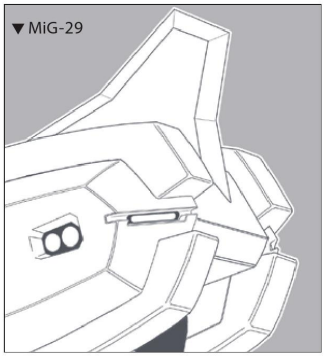
Mikoyam Guluvich had won in terms of combat operation results, and didn't miss the opportunity to propose to military leaders their own take on the Soviet High-Low-Mix Initiative, which expanded on their development policy. The 'High' was to be a refurbishment on the Su-27 Zhuravlik, whereas the 'Low' would be the 9/12. They argued that an increase in the overall performance of Soviet-made TSFs would be possible if technology and parts were shared between them and Sufoni. Their plan was approved.

The 9/12's development instantly accelerated after Sufoni's donation of Western technology. Even while conducting design changes such as adopting motor blades as standard equipment, within a mere two years, they completed a prototype that would soon be ready for mass production. The 9/12 prototype demonstrated high capabilities across a series of operational tests and evaluations, and was given the official designation MiG-29 and the nickname Lastochka, Russian for 'swallow', because of its high mobility and maneuverability. Essentially, it brought back Mikoyam Guluvich Design Bureau's position of being a mainline TSF manufacturer.

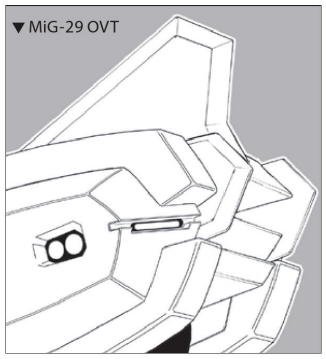
The MiG-29's deployment was prioritized to Europe, and was off to a steady start, but the curse of Mikoyam Guluvich still loomed. Starting with the Imperial Japanese Shiranui, which had coincidentally been deployed the same year, it seemed imminent that the Western Bloc nations would convert their equipment to 3rd-generation craft. Even 2nd-generation craft were seeing upgrades into 2.5th-generation craft, such as the F-18E Super Hornet. Once again, Mikoyam Guluvich's cutting-edge craft was obsolete by the time of its deployment.

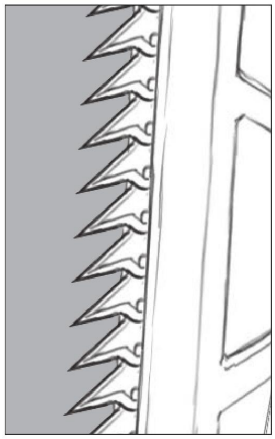
On the other hand, Sufoni, which had exchanged their Western technology for MiG's accumulated knowledge and highly reliable technology, released the 2.5th-generation Su-37 Terminator, a refurbishment of the Su-27 Zhuravlik, in 1997. By being highly expandable, it attained the position of the Soviet Armed Force's mainline craft. Following this, the domestic procurement of the MiG-29 was halted and it began to be exported to numerous nations, as a strategic resource to secure international influence.

▼ MiG-29



▼ MiG-29 OVT





◀ The large motor blades are equipped on the front of its lower legs.

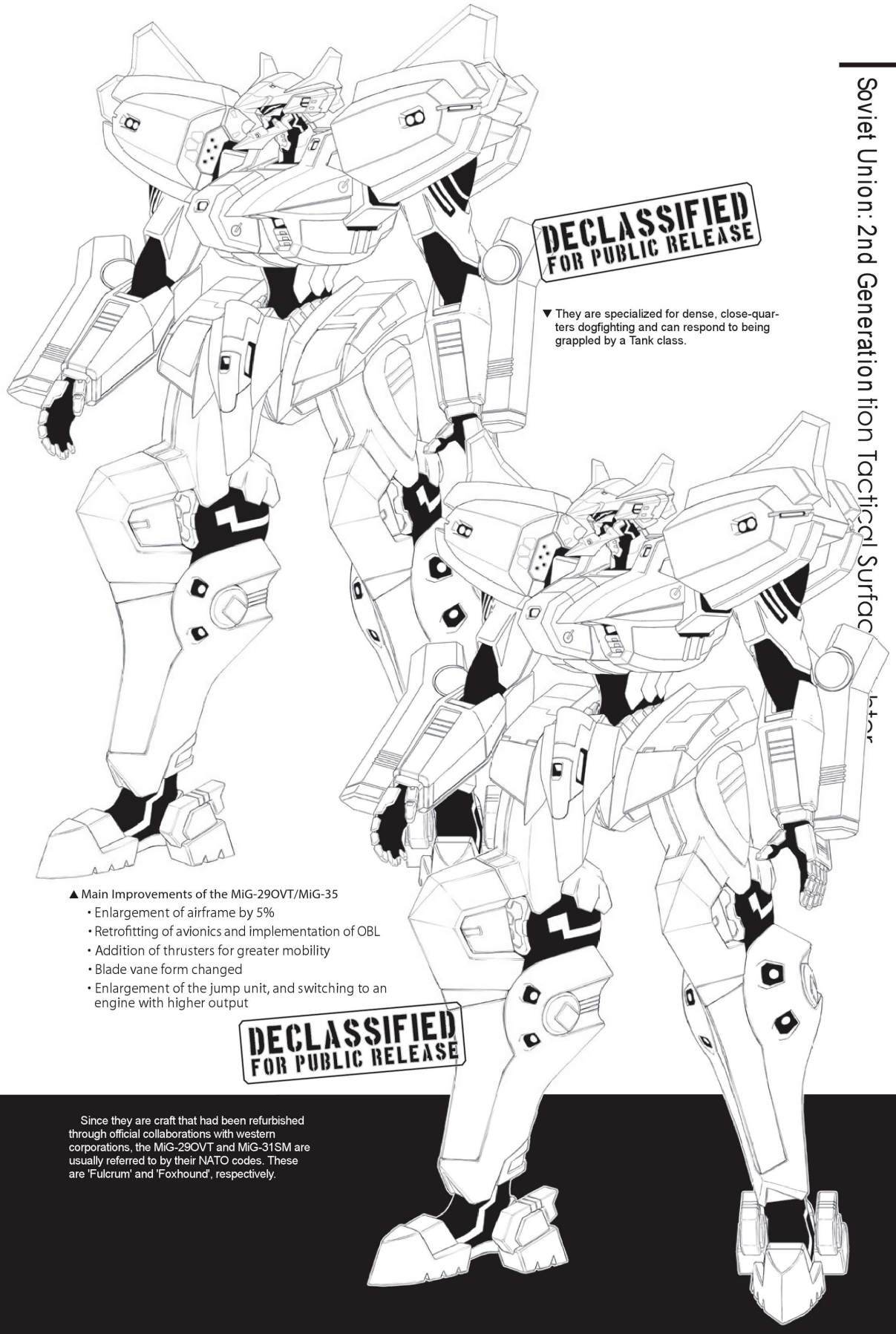
Although the MiG-29 had missed its chance to be adopted on a full scale in the Soviet Union, it was formally adopted by many countries, including those in the Eastern European Socialist Alliance (formerly Warsaw Treaty Organization), the Middle East, and in Africa.

It was also well received for having specifications rivaling those of the F-16 Fighting Falcon and the F-18 Hornet, while vastly surpassing both in dense, close quarters dogfighting abilities, and in terms of cost. As a result, many local specification versions have been produced across the globe.

One such craft is the MiG-29OVT (MiG-35, a 3rd-generation craft), which received many refurbishments as part of an official technological cooperation with Northrock Grunnan. It achieved such a great improvement in specifications, that it was called the 'Eagle of the East'. It is currently undergoing comparative trials against the Su-47 Berkut (estimated to be 3rd-generation) to reclaim its position of the mainline craft of the Soviet Armed Forces.

MiG-29 Ласточка

Soviet Union: 2nd Generation Tactical Surface Fighter



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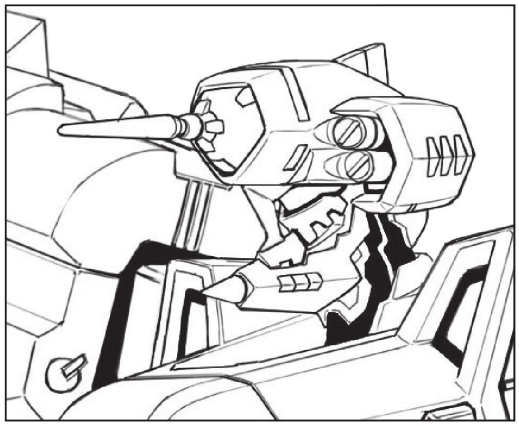
▼ They are specialized for dense, close-quarters dogfighting and can respond to being grappled by a Tank class.

▲ Main Improvements of the MiG-29OVT/MiG-35

- Enlargement of airframe by 5%
- Retrofitting of avionics and implementation of OBL
- Addition of thrusters for greater mobility
- Blade vane form changed
- Enlargement of the jump unit, and switching to an engine with higher output

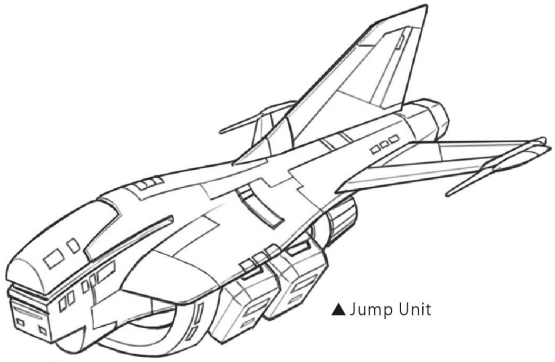
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Since they are craft that had been refurbished through official collaborations with western corporations, the MiG-29OVT and MiG-31SM are usually referred to by their NATO codes. These are 'Fulcrum' and 'Foxhound', respectively.

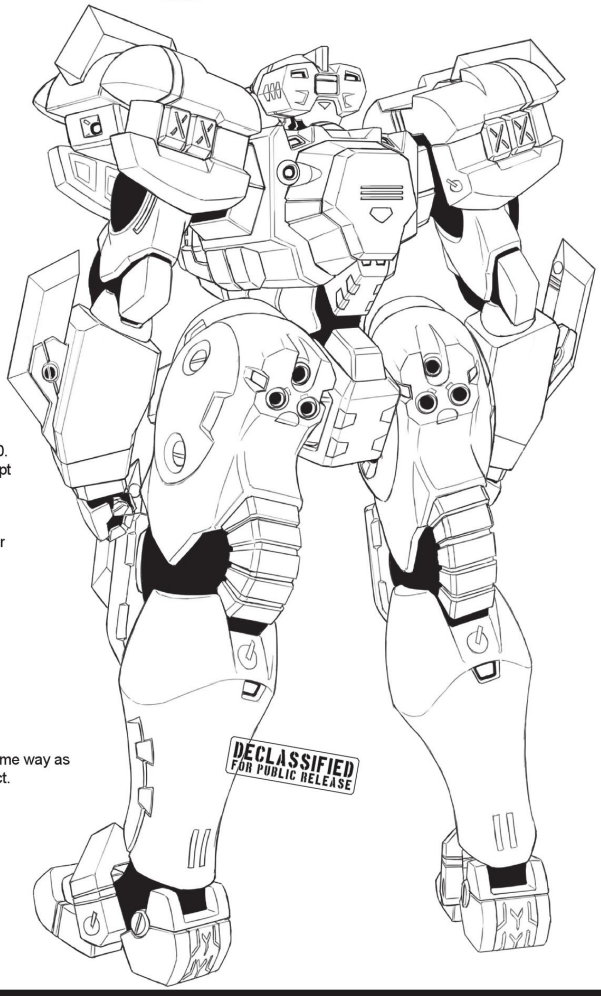


▲ Head Module

The sensor mast faces forwards, in anticipation of dense dogfighting. The traditional wire cutter is also present, and its striking placement resembles the Su-15.



▲ Jump Unit



▶ Carbon Blade

A fixed armament that was trialed on the final model in 1980. Sufoni's undeniable foresight can be seen in that the concept of fixed armaments, which would lead to the Su-27's development, were already being researched at this stage. Considering the situation of the Soviet Union, omitting the complex combat knife deployment mechanism on the upper arm is an entirely positive move.

▶ Main Leg

Even while being arranged in the same way as the MiG-21, its form is more compact.

Soviet Union : 1st-Generation Tactical Surface Fighter Su-11TM

The Su-11TM is a 1st-generation TSF developed by Soviet design bureau Sufoni. It is based on Northrock's F-5 Freedom Fighter. By 1974, the BETA invasion was gradually encroaching on Soviet territory by advancing northwards through Eurasia. In preparation for the inevitable full invasion, Soviet leadership declared an emergency and imported the F-4R from McDaell Doglam, over the course of 1974 and 1975. Unfortunately, it was impossible to match the craft's specifications to the country's needs so quickly, as the F-4 Phantom had only just been developed. Although the R in F-4R stands for Russia, it signifies little more than a cold climate specification.

With regards to medium to long range mobile bombardment, in the vast expanse of central Eurasia, the F-4R was highly praised by military leadership. However, it was lackluster in close-quarters dogfighting, which would be the focus of future defensive battles of major cities, such as Moscow. Furthermore, as the construction of maintenance facilities for this new conceptual weapon, as well as the training of maintenance personnel had been stalled, the operational rates of these craft on the front line declined with each passing day.

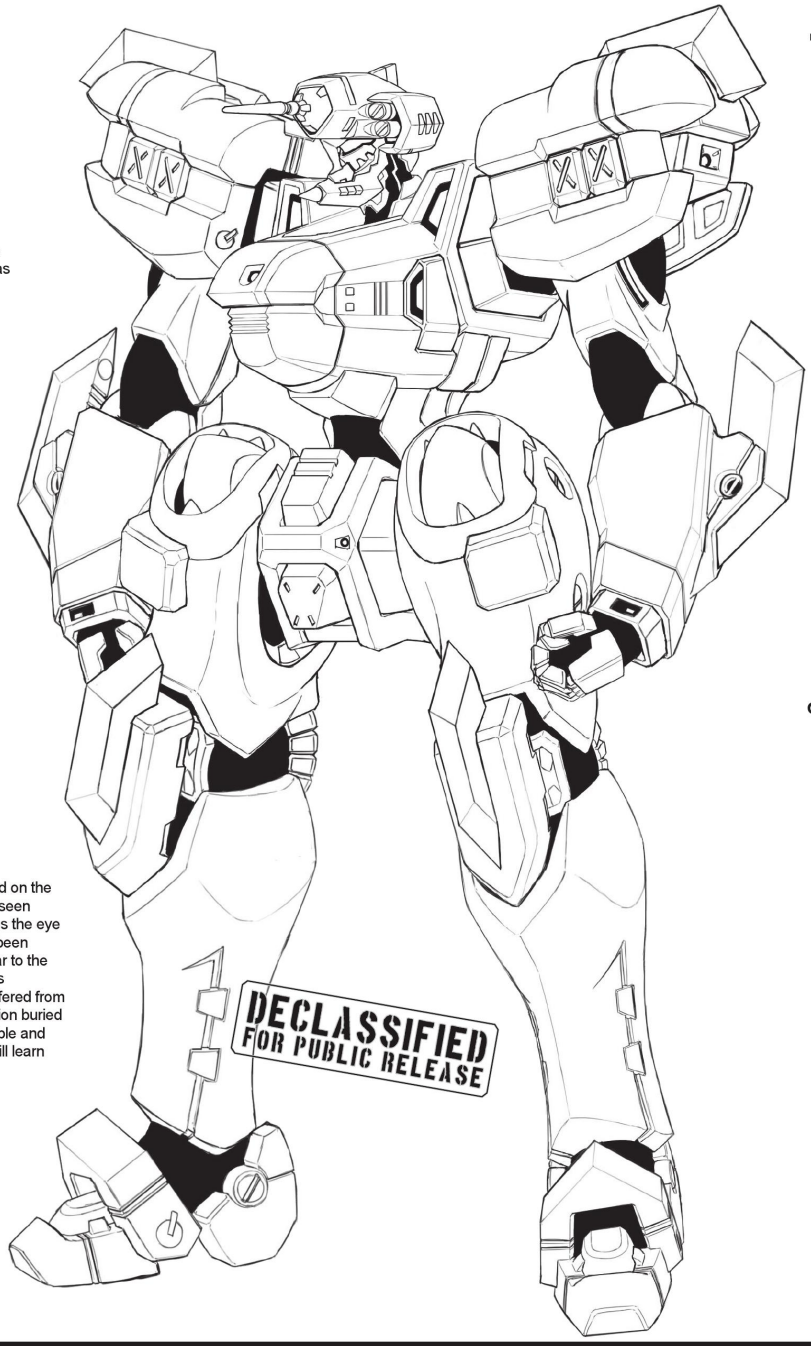
Soviet leadership wanted to bolster their military with completed F-4 Phantoms from the US, while they made steady progress with their manufacturing infrastructure, with US assistance. However, since there weren't enough F-4 Phantoms globally, not even this was possible. Soviet leadership then entered discussions with the military. As a result, they gave up on the heavily armored F-4 Phantom and tried to find a means of importing the F-5 Freedom Fighter, which was cheaper, lighter, and had higher mobility. However, before the ordered F-5s could be completed, the production line had already been filled with orders from Western Bloc nations. It was only by a high-level political decision that the US hastily sent a single squadron of twelve advance mass production models, which were being used in operational trials, to the Soviet Union.

The Soviet Armed Forces did not deploy these to the front line, rather, they were handed to Sufoni to be deconstructed and serve as the roots of the Soviet Union's first purely domestic TSF. In order to get the craft to the mass production line sooner, Sufoni kept refurbishments to a small scale, just enough to meet the specifications requested by the military.

By the end of 1975, Mikoyam Guluvich's MiG-21 Balalaika, which was developed from the F-4R, had already been deployed ahead of the Su-11, making

Su-11TM

Soviet Union : 1st Generation Tactical Surface Fighter



▶ Chest Block Armor

In this state, the thin side armor of the control unit may cause alarm, but it has been made to allow the installation of various types of supplemental armor. Variations exist, such as standard armor, heavy armor, and even spare magazine containers. It is possible to select the craft's weight and armor values, to fit the mission parameters.

▶ Form of the Final Model

Many improvements that reflected on the failure of the initial model can be seen across the airframe. What catches the eye the most is how its airframe has been designed with an approach similar to the MiG-21 Balalaika. This is perhaps indicative of the shock Sufoni suffered from having the Su-11's mass production buried by this craft, as well as their humble and sincere attitude that they could still learn valuable lessons from a rival.

▶ Traces of the Su-27 series

Even while learning from the MiG-21, Sufoni pursued uniqueness. Traces of the Zhuravlik can be seen across the craft.

it lose out on the honor of becoming the Soviet Union's first domestic TSF. Sufoni, growing impatient, further compressed the development period, and rolled out a mass production trial craft by the end of the following year.

The military command had been craving a cheap craft that could not only cover the deficiency of the expensive MiG-21 Balalaika, but that would also possess superior dogfighting abilities. They reached out to Sufoni's craft by giving it an early official designation, in order to show their high expectations. However, when the evaluation trials came, their attitude completely changed. It had received so few modifications, that it was mocked by those involved as being the 'F-5R', and compared to the original craft, it had a short continuous operational time, and it could not mount as many armaments.

After having the craft's mass production rejected, Sufoni independently worked on changing and improving its specifications, while requesting retrials each time.

In the end, there would never be a second evaluation trial. By 1976, the Soviet Armed Forces leadership were satisfied with the MiG-21 Balalaika to a certain extent, and began to refocus on manufacturing it.

From here, Sufoni abandoned their 1st-generation development to begin researching 2nd-generation craft. Because of this, the Su-11, even with its formal designation, ended its life without ever being deployed as a craft of the Soviet Armed Forces. In the end, the Su-11 saw continued development as the intermediary Su-11TM, which was a test bed for 2nd-generation research and development. It would continue to undergo strenuous operational trials, such as those conducted in combat zones, and it greatly contributed to Sufoni's technological capabilities and experience, which would lead to the later developments of the Su-15 and the Su-27.

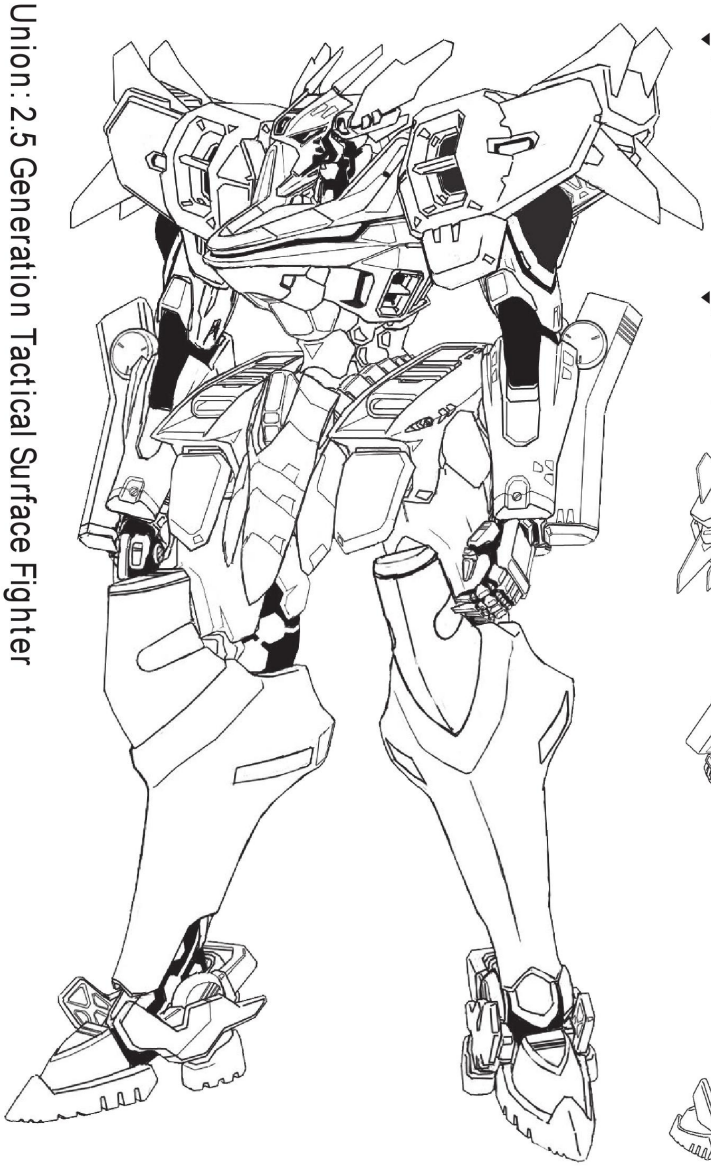
■SPECIFICATION

Model Number：Su-11
Generation：1st
Year of Deployment：1976 （Prototype）
Manufacturer：Sufoni
Jump Unit Engine：ALS-7F-2
Height：16,6 m

Su-37UB Терминатор

Soviet Union: 2.5 Generation Tactical Surface Fighter

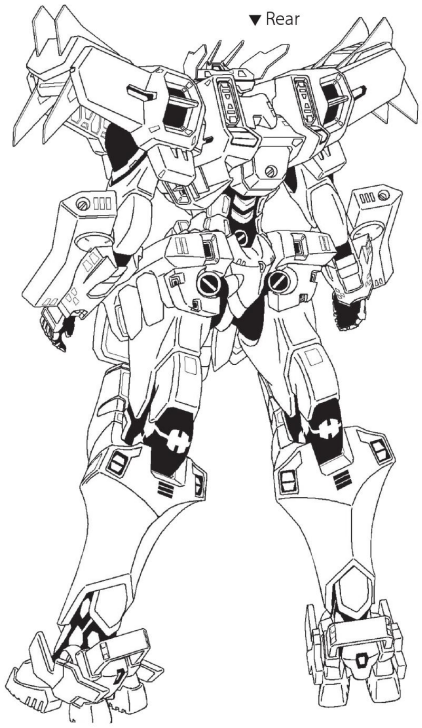
▼Su-37 Head
The various sensors in the head module are enhanced. The sensor mast has been enlarged and changed to a shape with better aerodynamic characteristics.



◀Compared to the lower sides of the shoulder armor block of the Su-27SM, there are two newly added blade vanes (4 total, left and right). This allows it to make a strong slashing attack while making an evasion in a dense close quarters fight.

◀By allowing thrust from the jump unit to be emitted from the front of the airframe, reverse boost is possible with minimum propellant consumption. Although the similarity with the YF-23 mechanism has been pointed out due to the similar shape of the unit, both the Sufoni Design Bureau and Northrock Grunnan deny any relationship between them.

▼Rear



Soviet Union: 2.5 Generation Tactical Surface Fighter Su-37UB Terminator

The Soviet Armed Forces, having evaluated the excellent performance of the Su-27M2 technology demonstrator trial craft, which the Sufoni Design Bureau independently researched and developed, hastily adopted the craft as an official quasi 3rd-generation TSF and gave it a new model number, the Su-37 Terminator. The control unit supports a convertible system that allows for a single seat or double seats to be mounted. The single seat model is called the Su-37M2, while the double seat model is called the Su-37UB.

In 1996, the Soviet leadership, feeling a sense of crisis by the pace of deployment of 3rd-generation TSFs in western countries, ordered the immediate implementation of the next generation specification craft, and selected the TSFs that can be quickly upgraded to quasi 3rd-generation performance. The Su-27M2 and MiG-29 were the candidates.

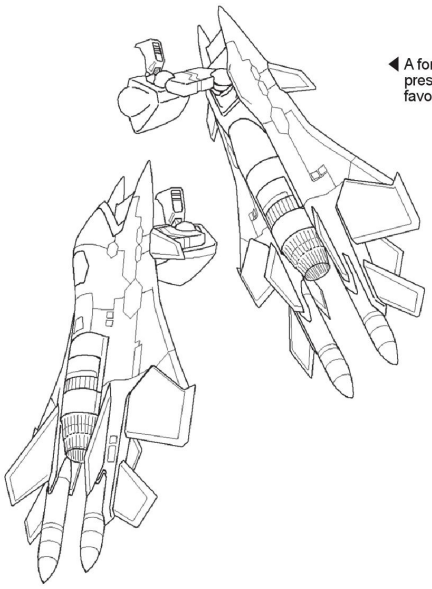
After close inspection, both machines were judged to be nearly equal in overall performance, but in consideration of the blank gap that would occur while the required rebuilding of the production infrastructure and conversion of the surface pilots took place, a craft that was directly descended from a mainline TSF in present service was judged preferable, and thus the Su-27M2 was selected.

In order to strengthen the close quarters offensive ability and mobility of the concept airframe, the number of blade vanes on the shoulders was doubled, thruster modules were added to its waist armor, and the reliability and performance of the avionics, which was a weak point of the Soviet Union airframes, were greatly improved. As a result, with the exception of its close quarters dogfighting ability, its overall capabilities reached a standard that is equal to or higher than that of the 3rd-generation TSFs of other countries.

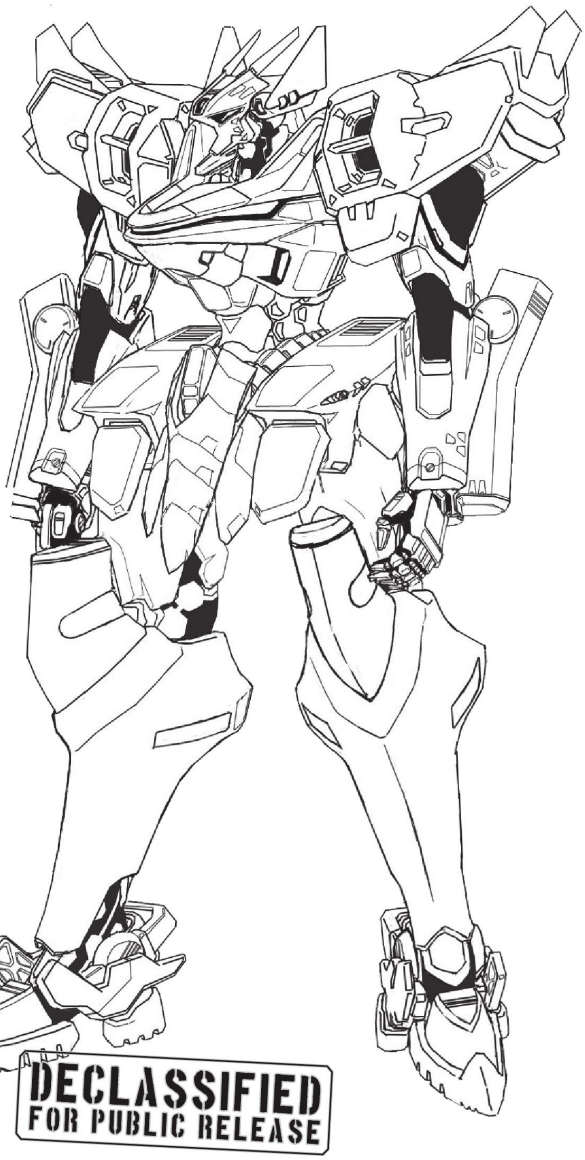
Although Su-37's official nickname was originally 'Zhuravlik' too, Sufoni retrospectively adopted the identification designation "Terminator" that the West gave it for the sake of convenience, calling it the "Терминатор" in Russian.

Su-27SM Журавлик

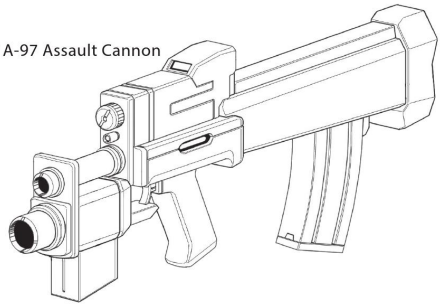
Soviet Union: 2nd Generation Tactical Surface Fighter



◀ A forewing-shaped blade on the side of the jump unit's inlet, which was not present on the initial Su-27, was added to the Su-27SM since it demonstrated favorable performances on the Su-27M2/37.



▼ A-97 Assault Cannon



■ Su-27 Derivatives

- Su-33……A navy specification that can be loaded into vessels for operation with TSF carriers
- Su-32……A variant able to use long-range suppressive guided missiles, like the F-14 Tomcat. It was adopted as the updated craft of the MiG-25/31
- Su-27M2……A demonstrative test craft with increased mobility, later formally adopted as the Su-37
- Su-37UB……A multi-seat variant of the Su-37
- Su-47……A hive-capturing specification craft that pushes the limits of the Su-37 to create the ultimate mobile close quarters dogfighting craft

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Soviet Union: 2nd-Generation Tactical Surface Fighter Su-27SM Zhuravlik

The Su-27 Zhuravlik, a 2nd-generation TSF, commenced deployment in the Soviet Armed Forces in 1992. It was developed by Sufoni, a strong Soviet TSF developer, able to stand toe-to-toe with Mikoyam Guluvich, after being offered technical data of the F-14 Tomcat by Northrock Grunnan. However, its procurement numbers dropped drastically after the Su-37 was formally adopted ahead of schedule.

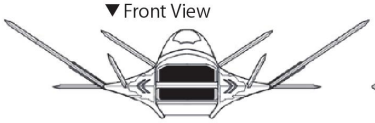
While being a large craft, equivalent in size to an F-14 Tomcat, its mobility and close-quarters dogfighting abilities rivaled those of the F-16 Fighting Falcon. As they had met the thoughtlessly conceived specifications through brute force, the initial model was riddled with problems, making it unpopular among frontline Surface Pilots.

The Su-27 was the first combat craft to adopt shoulder armor block blade vanes, and blade edges on the upper arms and shins (at the time of the initial model's deployment). As these were proven to be extremely effective weapons during dense close-quarters combat with the BETA, they have become standard equipment for Soviet craft made since.

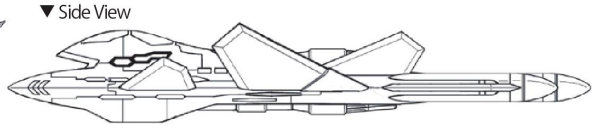
The Su-27SM, the latest refurbishment, took feedback from data gathered during the Su-27M2's operation trials, and was given increased fire control capabilities and main engine output, as well as retrofitted avionics. With these changes, the craft's overall specifications reached such a degree of perfection, that it is said to be able to stand its ground with the F-15E Strike Eagle.

Apart from exporting the craft to their European Allies and the Indian military, as well as permitting licensed productions to the Third United Front, the Soviet Union had also actively approached Western nations with their sales pitches.

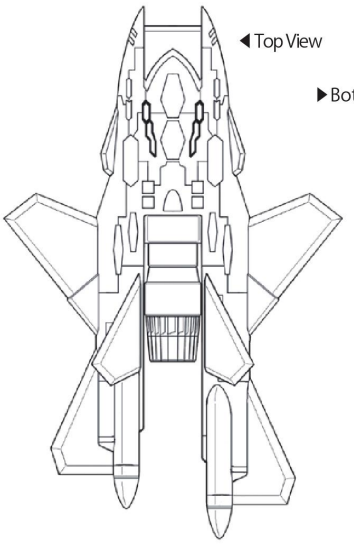
▼Front View



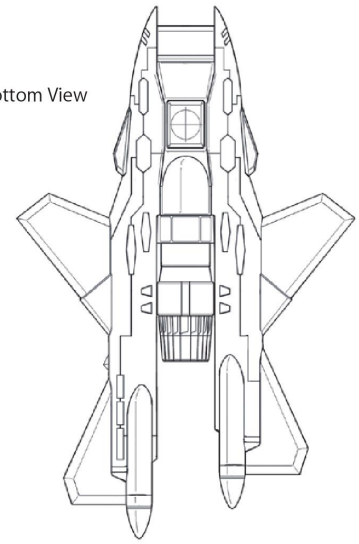
▼Side View



◀Top View

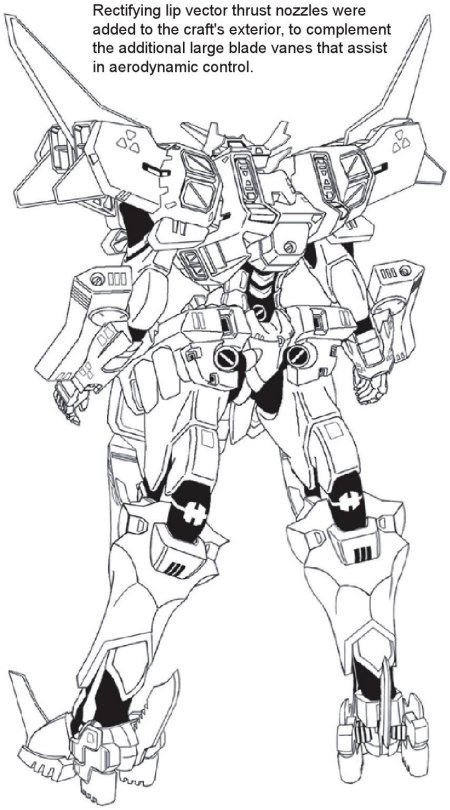


▶Bottom View



▼The newly designed shoulder block armor

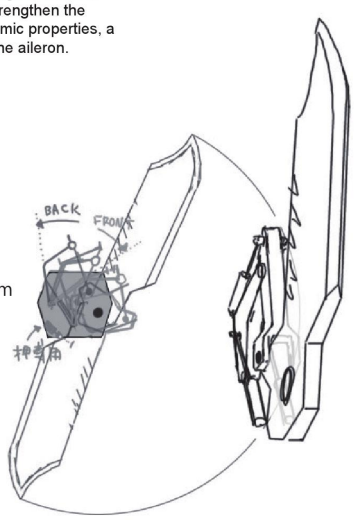
Rectifying lip vector thrust nozzles were added to the craft's exterior, to complement the additional large blade vanes that assist in aerodynamic control.



▲The new jump unit

A characteristic asymmetrical design of the rear end of the airframe. In order to strengthen the attitude control through aerodynamic properties, a regressive layout is adopted for the aileron.

▶The folding blade's mechanism



▲The large main legs, which were newly designed

Not only are the blade edges on the tips of the feet and the folding blades on the heels made of carbon blades, but all acute parts on the airframe have carbon blade edges incorporated on them.
A hatch to the armament storage is located behind the knee block armor, which operates independently.

Soviet Union : 3rd Generation Tactical Surface Fighter Su-47E Berkut

The Su-47 Berkut is a 3rd generation, local specification craft developed by Sufoni as frontline equipment for special forces specialized in capturing hives, so that the Soviet Union could finally achieve its earnest goal of retaking its territory.

Its redesign has focused on dense dogfighting that occurs during combat to capture or suppress hives. It has actively introduced state-of-the-art technologies from the West, including cutting-edge avionics and OBL, which had been publicly offered in an international corporate alliance.

These were mainly to assist in attitude control, which had become more difficult, since the addition and enlargement of super carbon blade vanes for greater close quarters combat abilities affected the craft's aerodynamics. However, this is definitely neither a 'design miss' nor an unintended negative factor.

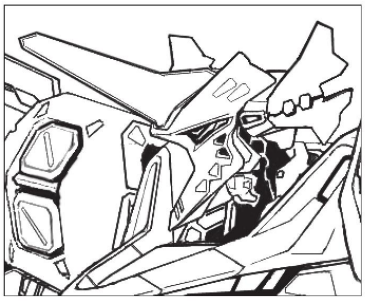
The airframe aerodynamics, the high efficiency and output of the newly designed jump unit (although is retains the fundamental form of prior units), and the precise post-stall area control of the latest avionics all gave it unprecedented mobility, reputed as '3-dimensional polygonal movement' even despite it being one of the largest TSFs.

Additionally, retrofitting the newly designed large main legs also increased the amount of fuel that could be stored in the craft's airframe, and extended the operational time by 30%. As a result, it gained the advantage over other Soviet-made TSFs in terms of hive capturing missions, where supplies can't easily be obtained.

It was initially deployed into the Soviet Armed Force's 43rd Guards Tactical Armored Division in 1999. As of October 2001, operational trials of the special operations demonstrator test craft, the E Type, began at Yukon Base as part of Project Prominence. It is being trialed by the 331st Special Experimental Development Squadron, from the Soviet Army's Central Strategic Development Corps. Furthermore, comparative operational trials against the MiG-290VT are being conducted, to fight for the place of replacing the Su-37, as the next mainline craft of the standard forces.

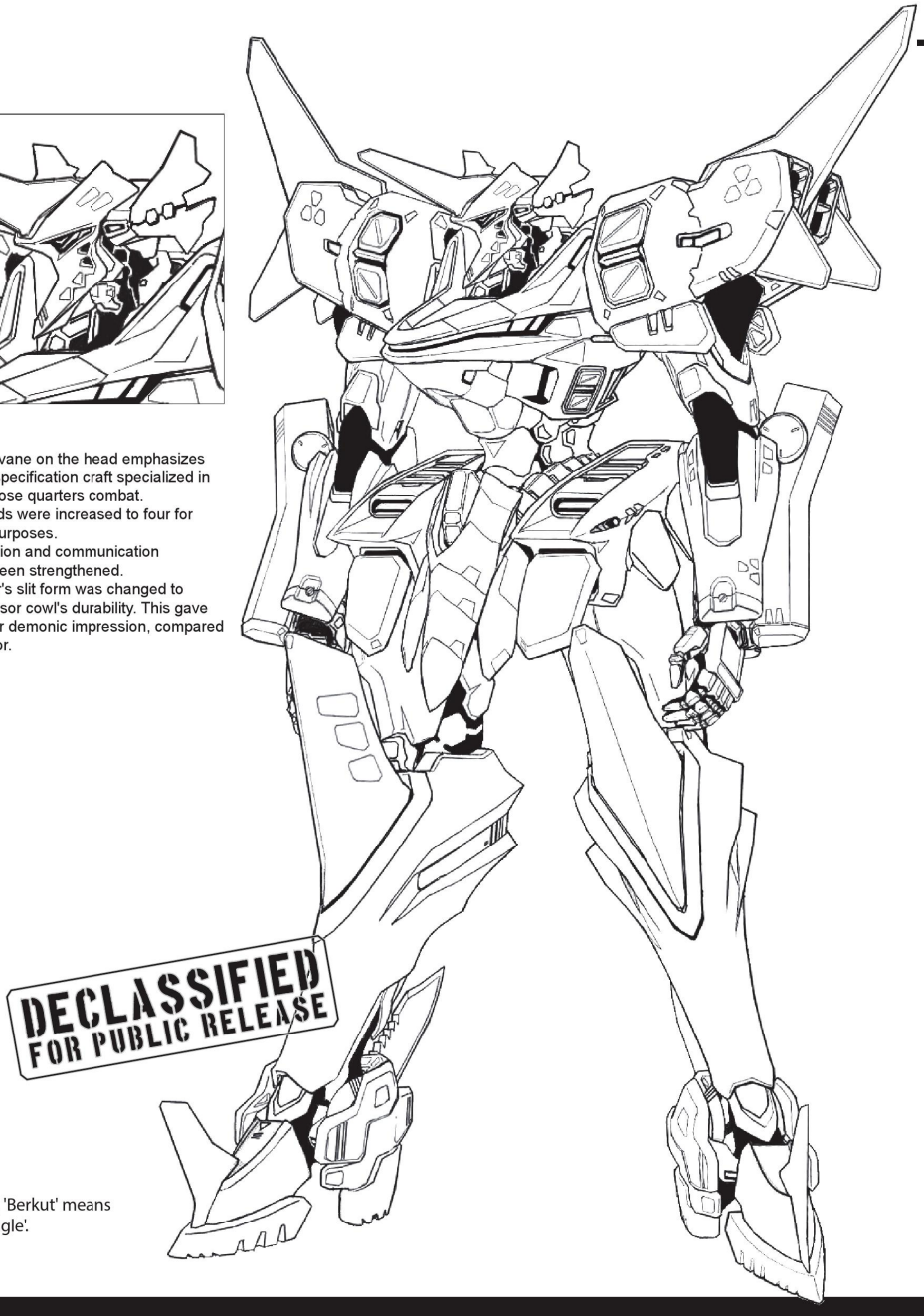
Su-47E Беркут

Soviet Union : 3rd Generation Tactical Surface Fighter



▲Head Unit

The large blade vane on the head emphasizes that it is a local specification craft specialized in dense, mobile close quarters combat.
Its sensor canards were increased to four for hive infiltration purposes.
Its enemy detection and communication functions have been strengthened.
The main sensor's slit form was changed to increase the sensor cowl's durability. This gave the craft a further demonic impression, compared to its predecessor.



In Russian, 'Berkut' means 'Golden Eagle'.

■ Development History

After losing the ATSF Program, which ran from 1983 to 1990, Grunnan was grasping at straws while continuing to produce the F-14 Tomcat, building parts for other manufacturers' TSFs, and continuing development on equipment. The solution to their predicament came from the fact that the F-14 was adopted for the Alternative 3 special operations unit. Using that as an opportunity, they would seek a means of survival through the MFPTI program, the Soviet version of the ATSF program.

Grunnan secretly made an offer for technological cooperation with Sufoni, which had been their maintenance and operation partner for the F-14AN3, and fully supported the development of the Su-27 as the successor to the F-14.

Even after that, they unlawfully disclosed data from the Advanced Technology Demonstration Program (ATDP), which ran from 1981 to 1983. They had participated in the program to work on the X-29, and by passing on this data, they greatly contributed to the development and completion of the Su-37, which had been the experimental Su-27M2. This craft boasted some of the highest mobile close quarters dogfighting abilities of all TSFs, and later, this data would be fed back into the development of the F-14EX. Grunnan, having abandoned the US market due to the changes in anti-BETA strategy, eventually merged with Northrock, which had also lost during the ATSF Program.

Together, they continued their existing business model of developing crafts with a focus on mobile dogfighting, an ability sought by many countries bearing the burden of the Great BETA War. They then lobbied congress to allow public technological cooperation with foreign manufacturers. They covered up their true intentions by arguing that this would protect domestic military industry and expand US influence by monopolizing the ownership of armaments and equipment.

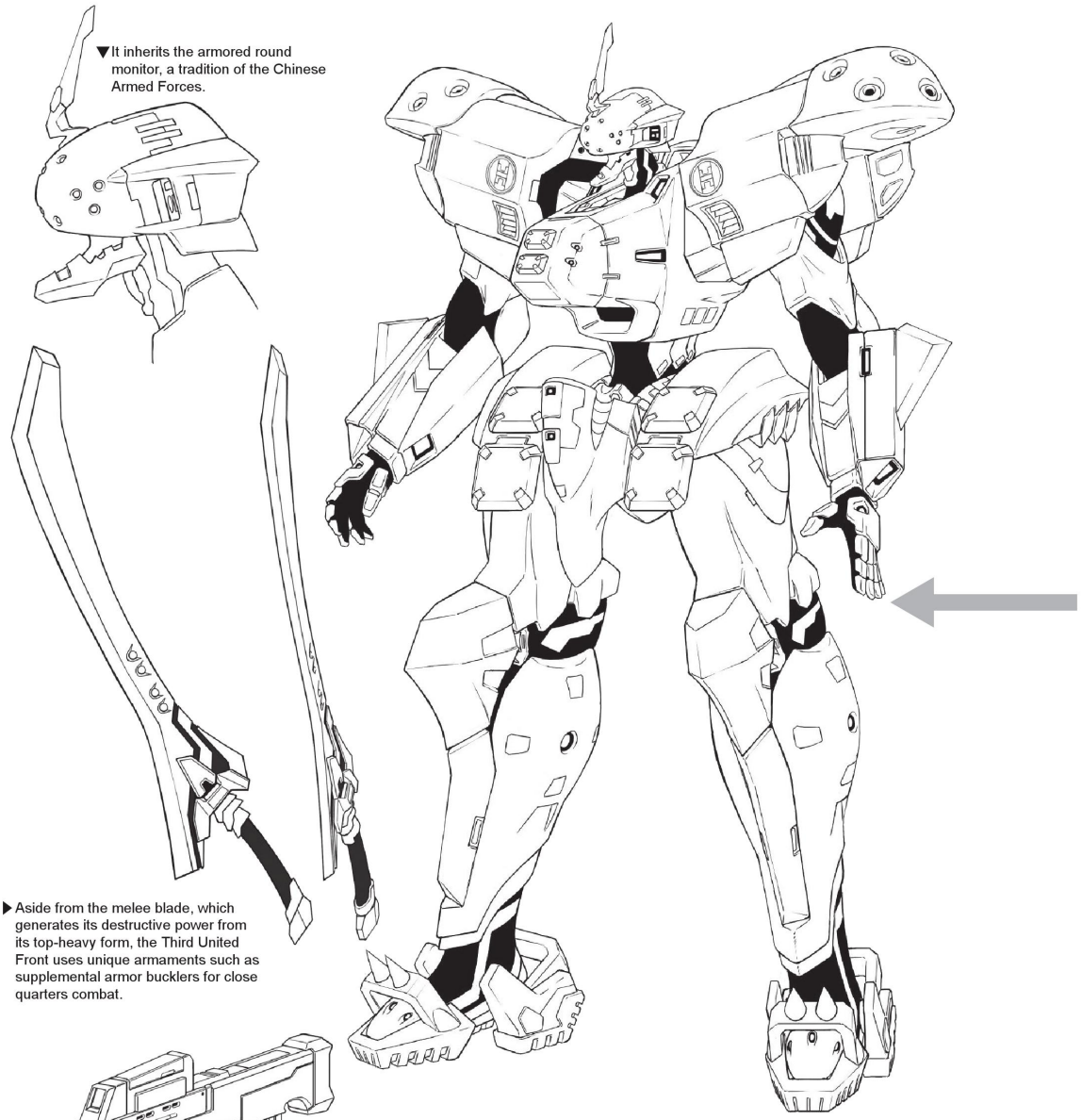
Several American arms manufacturers with TSF departments responded to this lobbying, and US congress crumbled under economic and industrial pressure. They agreed to allow the sharing of technologies, excluding those designed for anti-human combat such as stealth technologies, though with some conditions.

The Soviet Union, having lost most of its territory and manpower, was weakened so much that it was forced to lease a part of the US. Therefore, the regulations placed against them were loose compared to other countries, such as Imperial Japan.

This allowed for design bureaus, not limited to Sufoni, to receive full technological support, and the development of full scale 3rd generation crafts such as the Su-47 Berkut and the MiG-290VT were made possible, even in the Soviet Union, which was facing a decline in national strength.

J-10 Jian-10

Third United Front : 2nd Generation Tactical Surface Fighter



▼It inherits the armored round monitor, a tradition of the Chinese Armed Forces.

▶Aside from the melee blade, which generates its destructive power from its top-heavy form, the Third United Front uses unique armaments such as supplemental armor bucklers for close quarters combat.

◀An assault cannon designed in the image of the Type 97 Assault Rifle.

▲ Hyper carbon blades are mounted on the outer forearms and the area from the knee armor blocks to the lower legs.
Reactive armor is equipped onto to the front of the chest and waist blocks, to fend off Tank classes that have jumped onto the craft.

Third United Front : 2nd Generation Tactical Surface Fighter J-10 Jian-10

A 2nd generation TSF developed by both the Third United Front and Israel. It is a cutting edge craft based on the F-16C Fighting Falcon, and it has been deployed alongside the J-11 (Su-27SK) as part of the Chinese version of the High-Low-Mix Initiative. It is an excellent craft, with high close quarters dogfighting abilities, maintainability, and production potential. From all of the F-16 Fighting Falcon derivatives, commonly called the '16's Family' among military personnel, it has been the most successful.

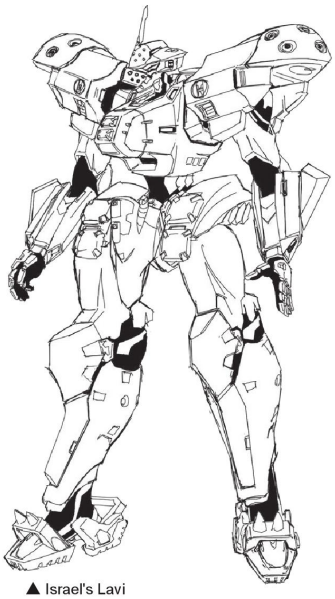
The US had offered countries that had adopted the F-5 Freedom Fighter the choice between the F-16 Fighting Falcon and the F-18 Hornet to serve as the F-5's replacement. China adopted the F-16, which had better close quarters dogfighting abilities, but despite its stellar performance, it was a disappointment to those who had wanted to reclaim the continent. On the other hand, Israel was aiming to retake its territory ahead of its Arab neighbors, and was continually dissatisfied with the TSFs that they had been receiving from the US. They decided to independently develop a craft, the Lavi, with the high levels of close quarters dogfighting ability that they had desired.

Initially, the US had been supporting the project by contributing 60% of the development funds, so when they pulled out after changing their anti-BETA strategies to account for the G-Bomb, the program was effectively halted. Taking advantage of the situation, the Third United Front hoped to establish their own independent TSF development technologies, and so put forward their own collaborative plan to upgrade the F-16 Fighting Falcon. This reached combat deployment in 1994.

It is said that the lack of geopolitical conflicts of interest, the agreement in design and operational concepts, as well as support from Chinese and Jewish capital from around the world are reasons that this collaboration has progressed more smoothly than the EF-2000 Typhoon's. There are virtually no differences in specifications between the Jian-10 and the F-16 (Lavi). Only the head module's design and the close quarters combat armaments are different.

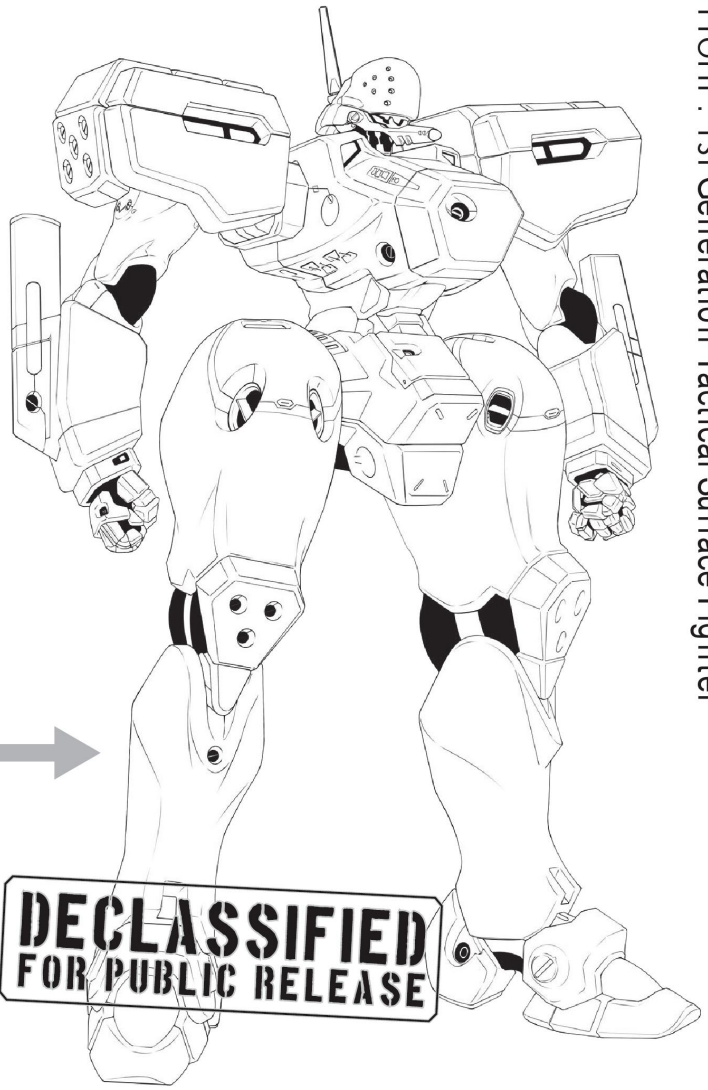
J-8 Jian Type 8

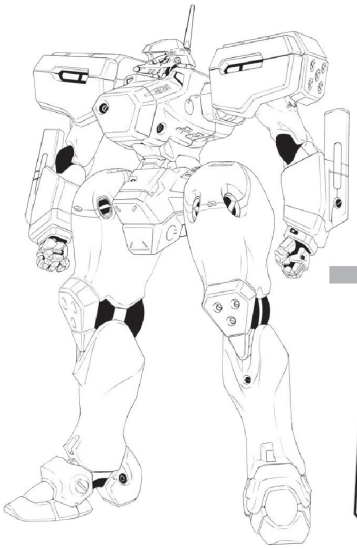
Third United Front : 1st Generation Tactical Surface Fighter



▲ Israel's Lavi
The head module's design slightly retains the impression of the F-16.

▼ A Jian-8 in its standing pose. Though designed during the production of 'Muv Luv Alternative', it did not see use in the game. If the original concept was followed, the diversionary battles in various hives across the world, during Operation Cherry Blossom, would have been momentarily depicted, but these were cut. This image would have been for the Target 16 Armored Attack Unit.





▲ The Soviet MiG-21.

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Third United Front: 1st-Generation Tactical Surface Fighter
J-8 Jian Type 8

The first generation, mainline craft of the Third United Front (At the time of deployment, it was still the PRC Army). It was originally based on the MiG-21 Balalaika, which was provided by the Soviet Union. The MiG-21 itself was originally based on the F-4R, a Soviet specification F-4 that was mainly refurbished for cold weather climate.

However, the Soviet Union's circumstances required a TSF with better abilities in close quarters dogfighting, and so the F-4R underwent weight reductions to create the MiG-21, which also had better mobility and maneuverability. Like the Soviet Union, China also had many hives erected in its territory. China chose to import the MiG-21 since it suited the situation of the nation far better than the all-rounder F-4, before starting to conduct further independent refurbishments.

The protective wire cutter, a distinguishing feature of all Soviet TSFs, was removed from the cover of the main sensor on the head, and was replaced with armor and a round monitor, in anticipation of even harsher close quarters combat. This specification, unique to Chinese crafts, sought to reduce the risk of the monitor being destroyed, and it earned favorable ratings, even in combat. It would later become a permanent feature of Chinese crafts.

Ever since China and Taiwan established the Anti=BETA United Front, the Third United Front, they have operated a mix of both Western and Eastern crafts. However, the Jian-10 has had the same improvements made to its head, despite being developed from Western technology (specifically, the F-16 Fighting Falcon). The main differences between the F-4R and the MiG-21 are listed below.

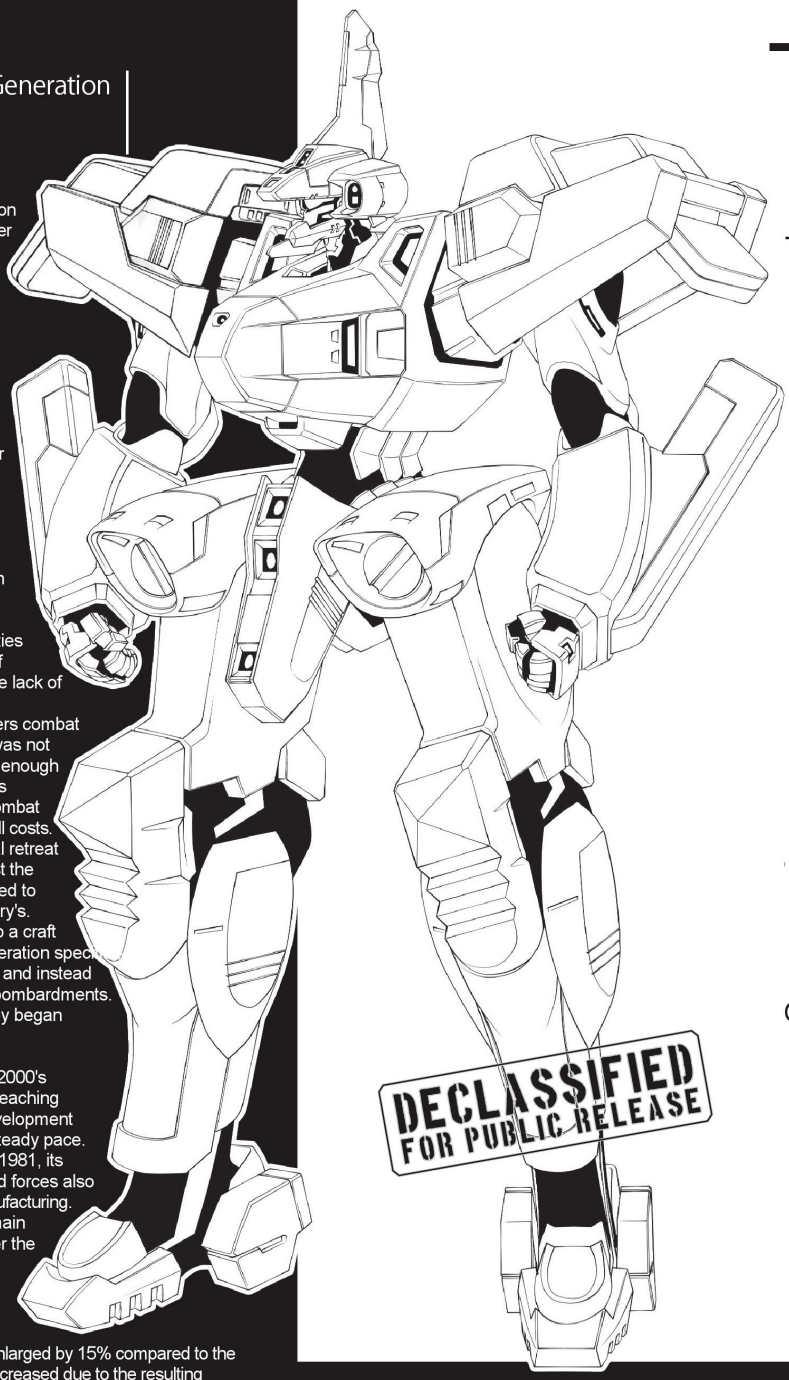
- Changes in the design of the head module
- Addition of a wire cutter to protect the head's main sensor
- Size reduction in the shoulder block armor
- Simplification of the leg armor
- Redesign of the leg and arm parts
- Changes to the jump unit's tail fin shape

Mirage 2000

French Republic : 1.5th Generation Tactical Surface Fighter

French Republic : 1.5th-Generation Tactical Surface Fighter
Mirage 2000

The Mirage 2000 is a 1.5th-generation TSF developed by French manufacturer Dass-Ault. It commenced combat deployment in 1981.



■ Development History

While refurbishing the F-5 to their own domestic specifications (the F-5F Mirage III), the French Armed Forces conducted their own unique refurbishments such as adding armor spikes to the knee armor blocks, in anticipation of dense, close quarters dogfighting with the BETA.

When deployed, the F-5F had the advantage over the F-4 Phantom in cost efficiency, but its rate of losses in close-quarters combat was still high. This was due to the accumulation of negative factors such as the capabilities of the 1st-generation craft, the lack of established anti-BETA tactics, and the lack of skilled Surface Pilots.

Though high losses in close quarters combat was a globally shared problem and was not unique to France, these losses were enough to alarm the French government. This spread the idea that close quarters combat with the BETA should be avoided at all costs. Impatient with the frontline's continual retreat and the inferiority of their craft against the BETA, the French government decided to adopt a doctrine akin to the US Military's.

They ordered Dass-Ault to develop a craft with higher survivability and 2nd-generation specifications, which would avoid dogfighting, and instead focus on close-to-mid range mobile bombardments. With cooperation from Northrock, they began developing their refurbishment of the F-5F Mirage III.

Although limitations of the Mirage 2000's fundamental design stopped it from reaching 2nd-generation specifications, its development was able to progress at a relatively steady pace. After its initial combat deployment in 1981, its deployment across the French Armed forces also went smoothly, due to its ease of manufacturing. The craft continues to serve as the main force of the French Military, even after the deployment of the Rafale in 1998.

■ Characteristics

Its arm and leg frames have been enlarged by 15% compared to the F-5F. Its operational time has greatly increased due to the resulting increase in propellant and fuel battery capacity. This also allowed for a greater number of armaments to be mounted on the craft. Furthermore, it became capable of high-speed surfacing after its main engine's output was increased. This allowed for repeated hit-and-run attacks to suppress enemies during culling operations. Finally, its survivability has been increased by giving it stronger fixed and supplemental close combat armaments. The official name of the initial mass production model of the Mirage 2000 was the 'Mirage 2000C'. Afterwards, more refurbishments were performed.

Dass-Ault would independently develop the Mirage 2000-3 as a prototype to explore advanced TSF technology, and they would further refurbish it into the Mirage 2000-4. It reached 2nd-generation standards by retrofitting cutting-edge fire control systems and avionics, as well as reinforcing and reducing the weight of the airframe through technological innovations and developments in materials engineering.

The Mirage 2000-5, which had gained mobile, close quarters dogfighting abilities, was formally adopted as the Mirage 2000-5F in the year 2000. The technological advancements made by each of these improved models would later be used in the development of the Rafale.

A French version of the High-Low-Mix Initiative was realized by supplementing the low numbers of Rafales with upgrades of existing Mirage 2000s into the 5F model, which boasted high close quarters combat abilities. At the same time, Dass-Ault entered Project Prominence in collaboration with the African Union, which had deployed a large number of Mirage 2000s. They are conducting tests of the Mirage 2000 Kai, which boasts extensibility through the retrofitting of modules.

Through this program, Dass-Ault hopes to give the Mirage 2000 Kai quasi-3rd generation specifications. By retrofitting the jump unit, it has further increased its mobile bombardment ability while surfacing, which was a strength of previous models.

J-11 Jian-11

Third United Front : 2nd Generation Tactical Surface Fighter

Third United Front : 2nd-Generation
Tactical Surface Fighter
Jian-11

The Jian-11 (J-11) is a 2nd-generation TSF that was developed when the Chinese Academy of TSF Technology conducted independent refurbishments on the Soviet Union's Su-27.

■ Development History

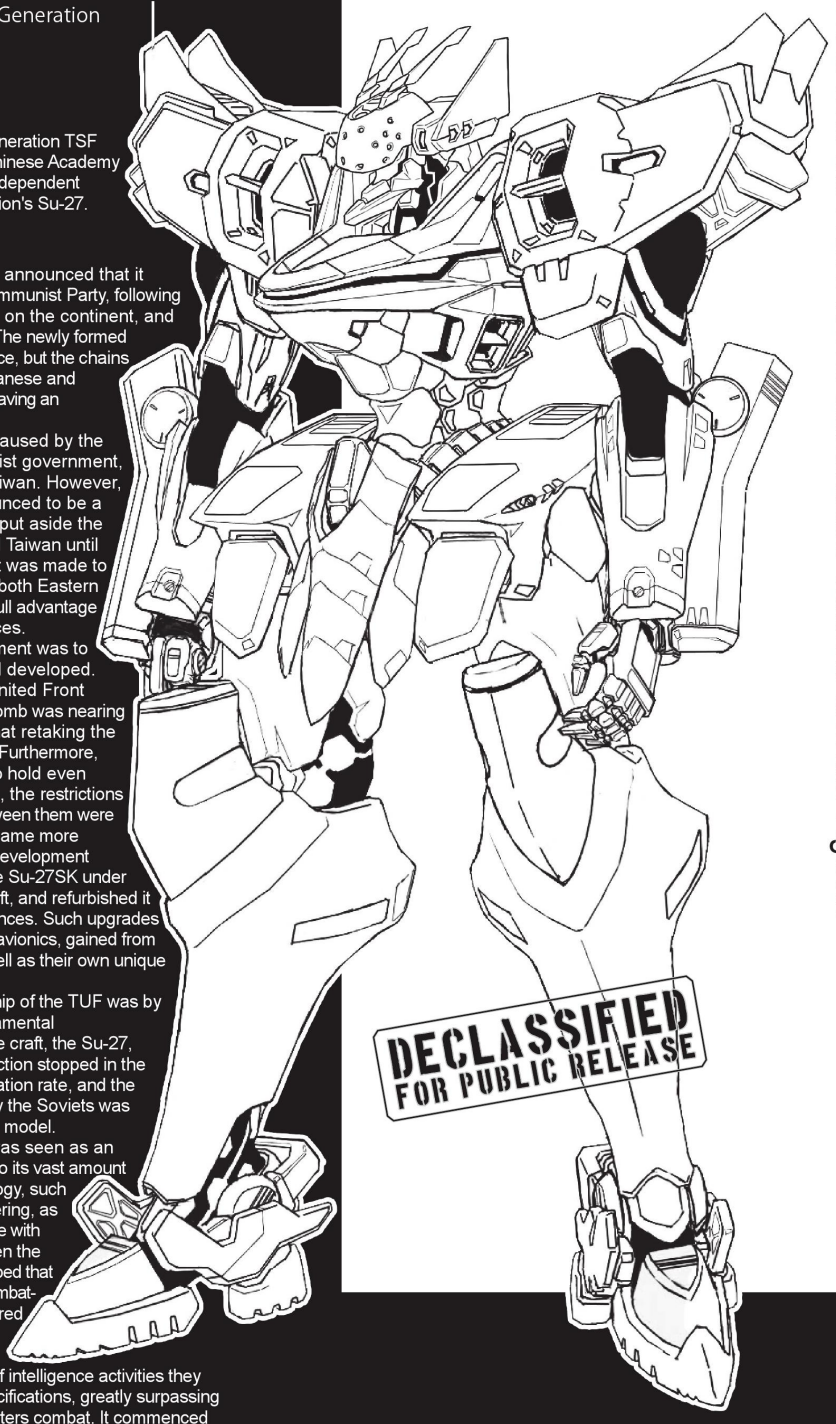
In 1986, the Taiwanese KMT announced that it would welcome the Chinese Communist Party, following the deterioration of the situation on the continent, and formed the Third United Front. The newly formed 'Chinese' army became an alliance, but the chains of command were split into Taiwanese and Chinese branches, despite both having an integrated headquarters.

This inefficient system was caused by the firm resistance of the Communist government, wary of being absorbed into Taiwan. However, the alliance was publicly announced to be a mutual undertaking that would put aside the differences between China and Taiwan until the BETA war ended, and that it was made to the avoid confusion from using both Eastern and Western craft, while taking full advantage of the valuable, preexisting forces.

Under this framework, equipment was to be independently procured and developed. However, by 1990, the Third United Front caught wind that America's G-Bomb was nearing completion, convincing them that retaking the mainland was their top priority. Furthermore, since they expected their unity to hold even after the mainland was retaken, the restrictions on technological exchanges between them were lifted and joint developments became more active.rush to accumulate TSF development technology, the PLA imported the Su-27SK under license as their next mainline craft, and refurbished it to match their nation's circumstances. Such upgrades included retrofitting it with Israeli avionics, gained from the Jian-10's development, as well as their own unique equipment.

However, the military leadership of the TUF was by no means satisfied with its fundamental specifications, because the base craft, the Su-27, had a history of having its production stopped in the Soviet Union due to its low operation rate, and the fact that the craft sent to them by the Soviets was essentially a downgraded export model.

On the other hand, Taiwan was seen as an out-of-reach treasure trove, due to its vast amount of cutting-edge Western technology, such as avionics and material engineering, as well as its accumulated experience with these in its production bases. When the Communist Party leadership grasped that the Taiwanese side wanted their combat-proven anti-BETA data, they offered it in exchange for technology lacking on the Jian-11, such as avionics. While making full use of intelligence activities they managed to reach a level of specifications, greatly surpassing the original's in dense close quarters combat. It commenced deployment to combat in 1996.

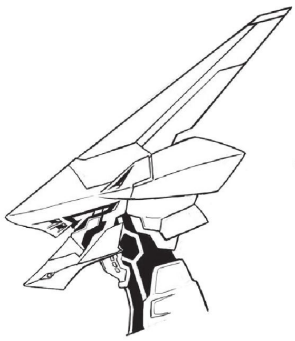


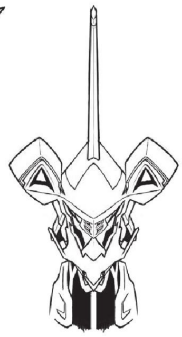
■ Characteristics

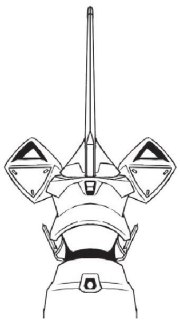
The PLA emphasizes dense, close quarters combat, even more so than the Soviet Armed Forces, so an armored round monitor was adopted on the head module to reduce the risk of damage to the main sensor. Furthermore, with its focus on combat under heavy metal cloud environments, it also assumes that the combat zone data link can be lost, so its communications antenna has been retrofitted with a low-tech compatible hybrid type. Finally, Sufoni was able to rectify the problem of the base model's (the Su-27) low rate of operation with their Su-27SK, by the time it was ready for import.

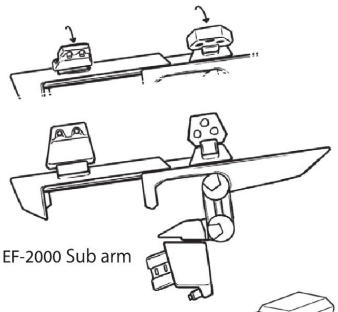
The Taiwanese Army side of the Third United Front used both the F-18E/F Super Hornet and the F-16C Fighting Falcon, which were TSFs of relatively similar size. On the other hand, the PLA had realized an efficient operational structure, similar to the American High-Low-Mix Initiative, using the large, full-scale Jian-11 alongside the small, lightweight Jian-10.

As they had demonstrated effective results in operations on the continent such as cullings, the influence of the Chinese within the coalition headquarters grew with every passing day. In fact, they became so influential, that they guided the choice of the next-generation mainline craft for the Taiwanese Army.



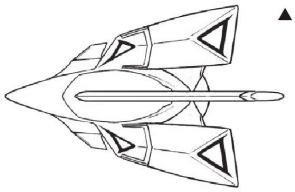


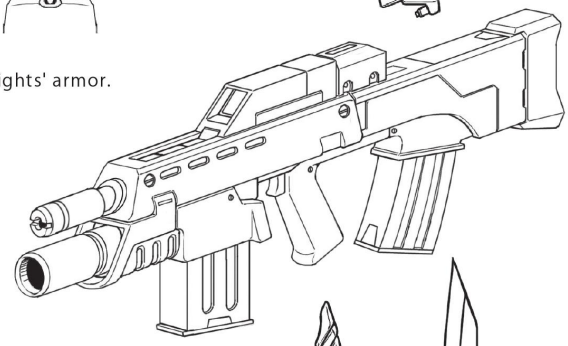




▶ EF-2000 Sub arm

▲ The head was based on knights' armor.



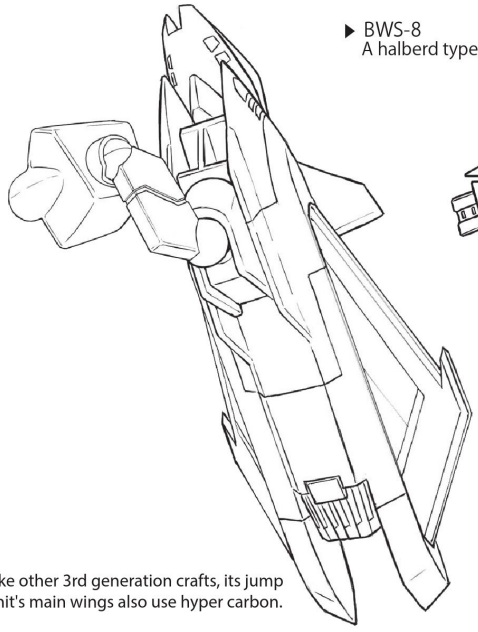


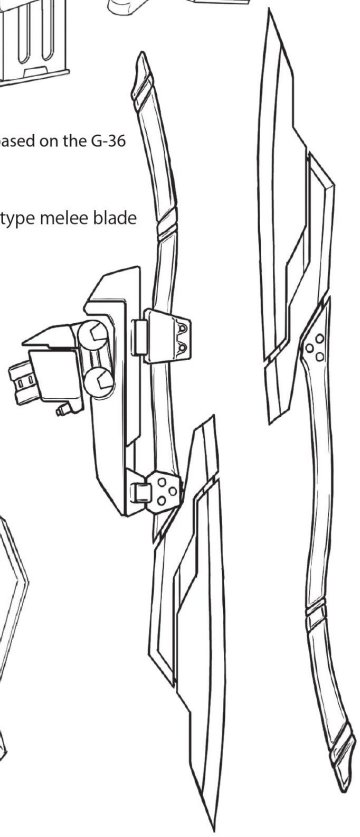
■ The resemblance of its armaments to German ones is due to the fact that the protagonist of the game that they appear in belongs to the West German Army.
Many variations exist, such as the British Great Sword, or the Spanish Army specification Spike Shields, which are multi-purpose supplemental armor used for assaults.

▲ GWS-9
An assault cannon based on the G-36

▶ BWS-8
A halberd type melee blade







▲ Like other 3rd generation crafts, its jump unit's main wings also use hyper carbon.

European Union: 3rd Generation Tactical Surface Fighter
EF-2000 Typhoon

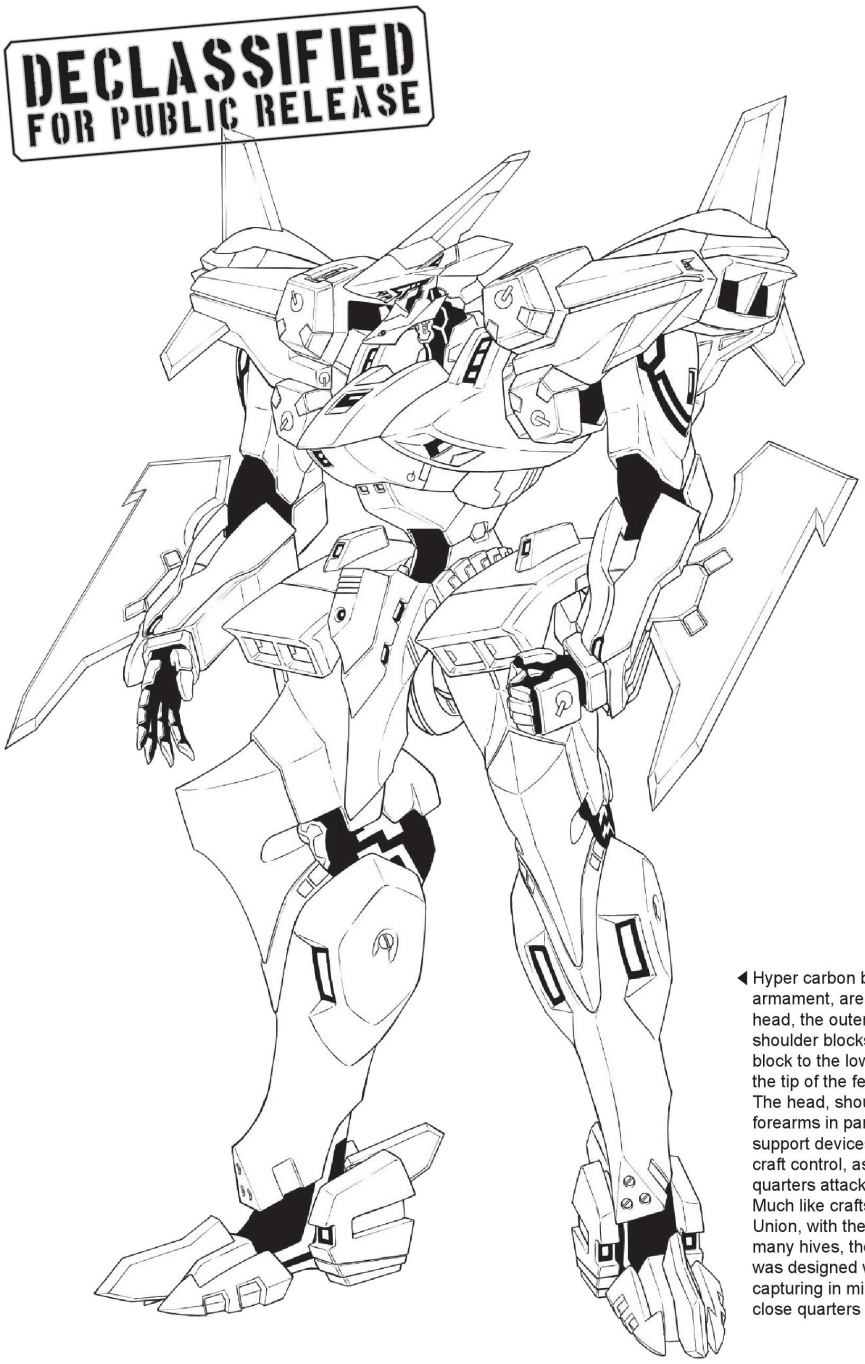
The 3rd generation, mainline TSF of the European Union.

In 1978, with the failure of Operation Palaiologos, the BETA's westwards advance into Europe became certain. NATO member states including the UK, West Germany, and France agreed to collaboratively develop a new TSF that would succeed their mainline TSFs, which at the time, were F-4 Phantom and F-5 Freedom Fighter license productions, such as the Tornado and Mirage. In 1980, development commenced under the ECSTF (European Combat Tactical Surface Fighter) Program.

The ECTSF Program promised a rapid bolstering of the front line, and sought completion by 1985. Their focus was on the lessons from Operation Palaiologos. What would be needed was the ability to conduct a long distance invasion to reach a hive, as well as increases in mobility and maneuverability in order to dodge laser attacks and increase capabilities in dense and close quarters dogfighting within hive interiors. Coincidentally, these specifications mirrored those of the F-15 Eagle, which was being developed at the same time. If it had been completed under the initial schedule and with those specifications, the ECTSF would likely have been a high specification, 2nd generation craft that would have been on par with

EF-2000 Typhoon

European Union: 3rd Generation Tactical Surface Fighter



◀ Hyper carbon blades, a fixed armament, are equipped on the head, the outer forearms, the shoulder blocks, from the knee block to the lower leg, and from the tip of the feet to the heels. The head, shoulders, and both forearms in particular act as support devices for aerodynamic craft control, as well as for close quarters attacks.
Much like crafts from the Soviet Union, with their vast plains and many hives, the EF-2000 Typhoon was designed with not only hive capturing in mind, but also dense, close quarters dogfighting.

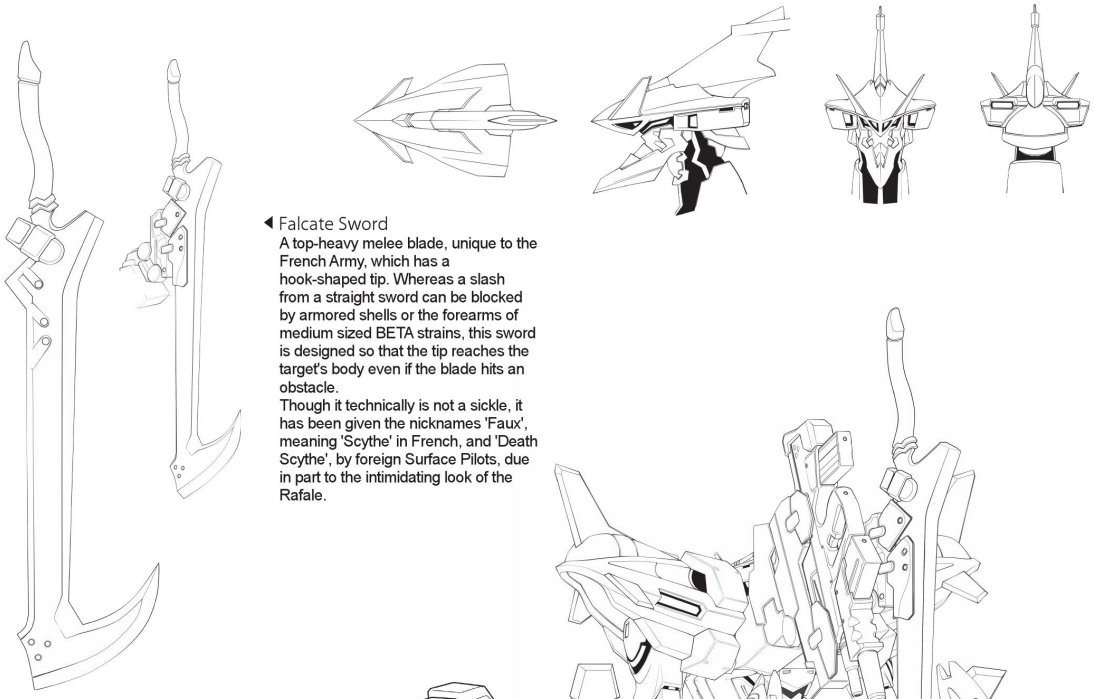
the F-15 Eagle. However, with Europe overrun by BETA, and from France, one of the key members, withdrawing due to their disapproval of the main engine, development suffered significant delays.

The countries involved enviously watched the success of the F-15 Eagle, and as many began to question the purpose of the ECTSF Program itself, West Germany showed signs of withdrawing.

While marketing of the F-15 Eagle by the US was gaining momentum, as if taking advantage of the situation, the UK had essentially been left as the sole developing country after the European continent had fallen. They decided on an overhaul of the project, to bring it up to 3rd generation standards with even stronger mobile, close quarters dogfighting abilities. In 1994, they built the prototype demonstrator craft, the ESFP (Experimental Surface Fighter Program), to trial the technology. Meanwhile, this limited imports of the F-15 Eagle, which had been based on their old specifications and design concepts, and convinced many countries to remain in the project, by demonstrating the ESFP's high combat capabilities.

Development then progressed smoothly, and in 1998, the advance mass production model, the EF-2000 (export name 'Typhoon') was given to trial groups. As of May, 2000, it started to be distributed to combat forces.

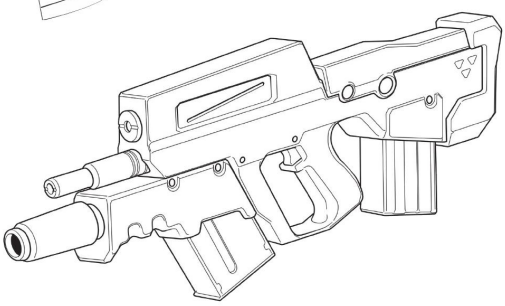
It is said that the 3rd generation technologies used on the ESFP's trial craft were established with assistance from Imperial Japan, which has a focus on hive capturing and close quarters dogfighting, much like the European nations. However, this has not been confirmed.



◀ Falcate Sword

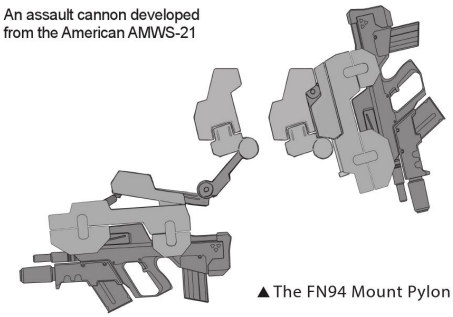
A top-heavy melee blade, unique to the French Army, which has a hook-shaped tip. Whereas a slash from a straight sword can be blocked by armored shells or the forearms of medium sized BETA strains, this sword is designed so that the tip reaches the target's body even if the blade hits an obstacle.

Though it technically is not a sickle, it has been given the nicknames 'Faux', meaning 'Scythe' in French, and 'Death Scythe', by foreign Surface Pilots, due in part to the intimidating look of the Rafale.



▲ FWS-G1

An assault cannon developed from the American AMWS-21



▲ The FN94 Mount Pylon System



French Republic: 3rd-Generation Tactical Surface Fighter Rafale

The Rafale is a 3rd-generation TSF specializing in medium to close range combat. It was developed by French manufacturer Dass-Ault.

In 1985, France withdrew from the ECTSF Program due to disagreements over the selection of the main engine and the craft's specifications, as well as the significant delays in development. France then set its sights on independently developing a next-generation TSF that would be the successor to the 2nd-generation Mirage 2000.

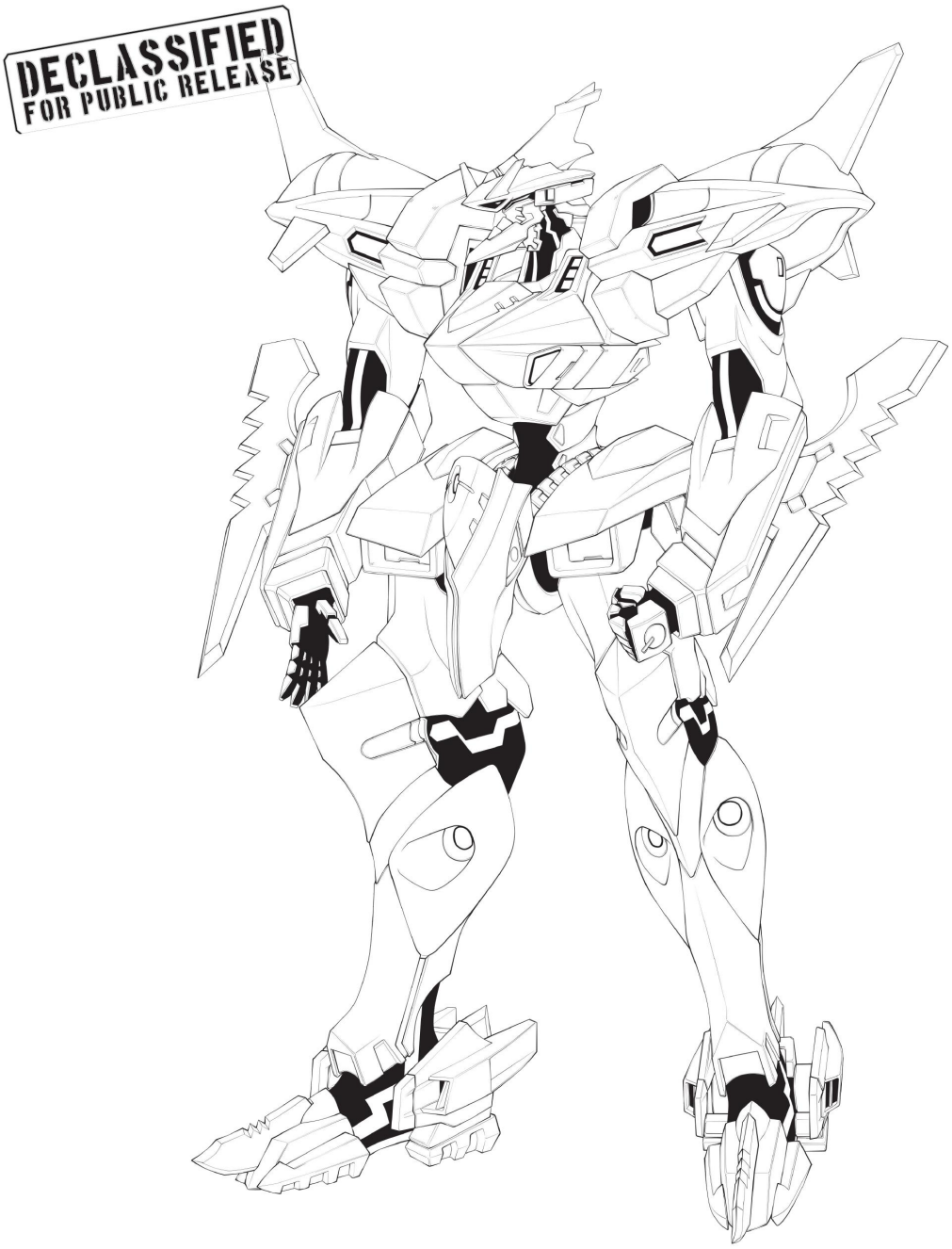
Immediately following this, global BETA activity suddenly escalated and conditions across the world's battlefields worsened. The French government decided to respond to the requests of their frontline personnel by prioritizing an upgrade plan of the Mirage series TSFs, which had already been deployed. The resources for this plan were taken from the Rafale Program.

However, the Rafale's stagnation ended up as a positive, as it gave even more time to research next-generation technology, which were relatively unknown at the start of the program, and time to study about 2nd-generation craft from the US.

Whereas the common standard of American and European craft was for over-engineered specifications, this design concept only slowed down the development of the Rafale. France embraced simplifications across the craft, but remained uncompromising in fundamental parts such as the control block,

Rafale

French Republic: 3rd Generation Tactical Surface Fighter



the armor material, carbonic actuators, and the assault cannon shells used. The simplifications led to their success of having the first prototype craft being rolled out in 1994, only a mere five years since it was formally allocated a budget. The development program ended with overall satisfactory results, due to achievements such as commencing combat operations in 1998.

The Rafale bore many similarities with the EF-2000 Typhoon, such as its design concept and appearance. However, this is to be expected, as their operational objectives and tactics are the same, not to mention they were based on the shared outcomes of the ECTSF, including basic and new technology.

A rumor has been circulating that the similarity between the European next-generation craft such as the Rafale and Sweden's JAS-39 Gripen is due to secret technological assistance from Imperial Japan, though these rumors have not been confirmed. On the other hand, their types of armaments are very unique and reflective of French operational concepts and tactics. These include the FWS-G1 Assault Cannon, a melee blade called the Falcate Sword, and saw blade shaped blade vanes on its arms.

As of 2000, just over a hundred craft are in operation in the French Army, and a majority of these have been deployed to the expeditionary forces on the Suez Canal defense line.

Kingdom of Sweden : 3rd Generation Tactical Surface Fighter JAS-39 Gripen

The JAS-39 Gripen is a 3rd generation TSF developed by Swedish manufacturer SAAG. It commenced combat deployment in 1996.

■ Development History

TSF development in Sweden started with the production of the J-35 Draken, their refurbishment of the US F-5 Freedom Fighter, as many other European countries had done. However, Swedish TSF development achieved a somewhat different outcome to standard European developments.

Without ample funds or national strength, Sweden had realistic goals for their independent development of a third generation craft. They simply opted for a lightweight TSF that focused on cost performance and reliability.

Compared to the generally flat terrain of continental Europe, Scandinavia is mountainous, allowing for its terrain to be used as a countermeasure against Laser class BETA. Therefore, Sweden focuses on attitude control to precisely conduct creeping flight in mountainous areas, with improvements to their terrain-following radars to assist this flight.

In its offensive capabilities, it is designed to operate in heavy metal cloud environments with the loss of combat zone data links. It directly captures its targets with sensors including optical types (the sensor mast alone is exposed from the ridge line of the mountain). It also focuses on having a multi-role response ability by being able to fire over ridge lines, and having a 'look-down/shoot-down' ability where it reveals itself to conduct accurate downwards fire. These basic specifications have not changed since the JA-37 Viggen, which was the successor of the J-35 Draken.

The fact that there are no hives in Sweden plays a large part in this. Sweden is happy to leave hive infiltrations to other countries while devoting itself to reclaiming and defending its own territory.

The development program of the JAS-39 Gripen followed the same rationality as its required specifications. Sweden is not tied down with developing its own 3rd generation technology, rather, it has been seen to receive support from Imperial Japan. Not only are both countries mountainous, they also share a historical resentment of Russia. It is said that during this time, Imperial Japan was secretly transferring 3rd generation technologies to Europe in order to secure the political presence needed to oppose the American G-Bomb strategy.

The ECTSF Program and Rafale's development were also influenced by this. Similarities between European 3rd generation crafts and the Imperial Japanese Type 97 Fubuki should not be seen as a coincidence. On the other hand, the craft still strongly reflects European technological research and combat data. Much like the EF-2000 and the Rafale, the influences from design trends originating in Europe can be seen in its deployable super carbon blade vanes, equipped on its forearms, the blade vanes on its shoulder armor blocks, and the design of its leg parts.

The nickname 'Gripen' is Swedish for the mythological creature, the 'Griffin', and the name was given to reflect its appearance of fighting freely in the air and on the ground.

■ Characteristics

Prior to the BETA War, Sweden's weapons exports were an important means of acquiring foreign currency, but since the JA-37 Viggen has been over-specialized for use in Sweden alone, marketing to the major markets such as Asia, the Middle East, and Africa has completely failed.

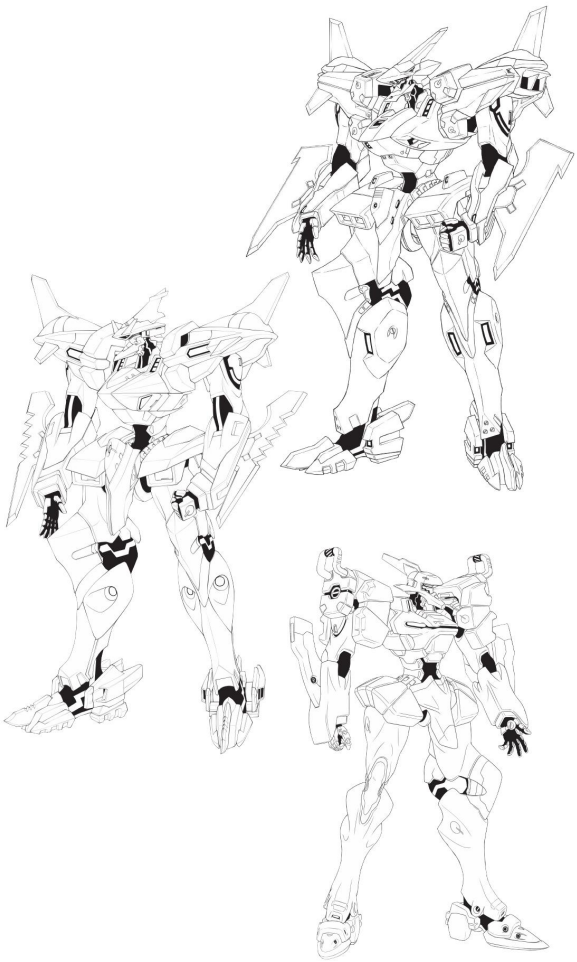
On the other hand, although the required specifications have not changed with the JAS-39, it has reached 3rd generation capabilities and has equipped cutting-edge avionics, which have naturally expanded its multi-role adaptability. With its unexpected versatility, it has been marketed to various countries as a relatively cheap and highly maintainable multi-role craft. Furthermore, SAAG has announced the Enhanced Gripen Program, to evolve the JAS-39 by researching next generation avionics and increasing the operational time of the craft.

As of 2000, with funding from Project Prominence, they produced the Gripen Demo, a demonstrator craft with the specifications of the Enhanced Gripen. Its evaluation trials are being conducted at Yukon Base.

▼ Head Module and Sensor Mast

An optical, multi-purpose sensor is contained within the bulge of the sensor mast's tip. To acquire a wider area, the main sensor has been extended vertically.





▲ Airframe Layout

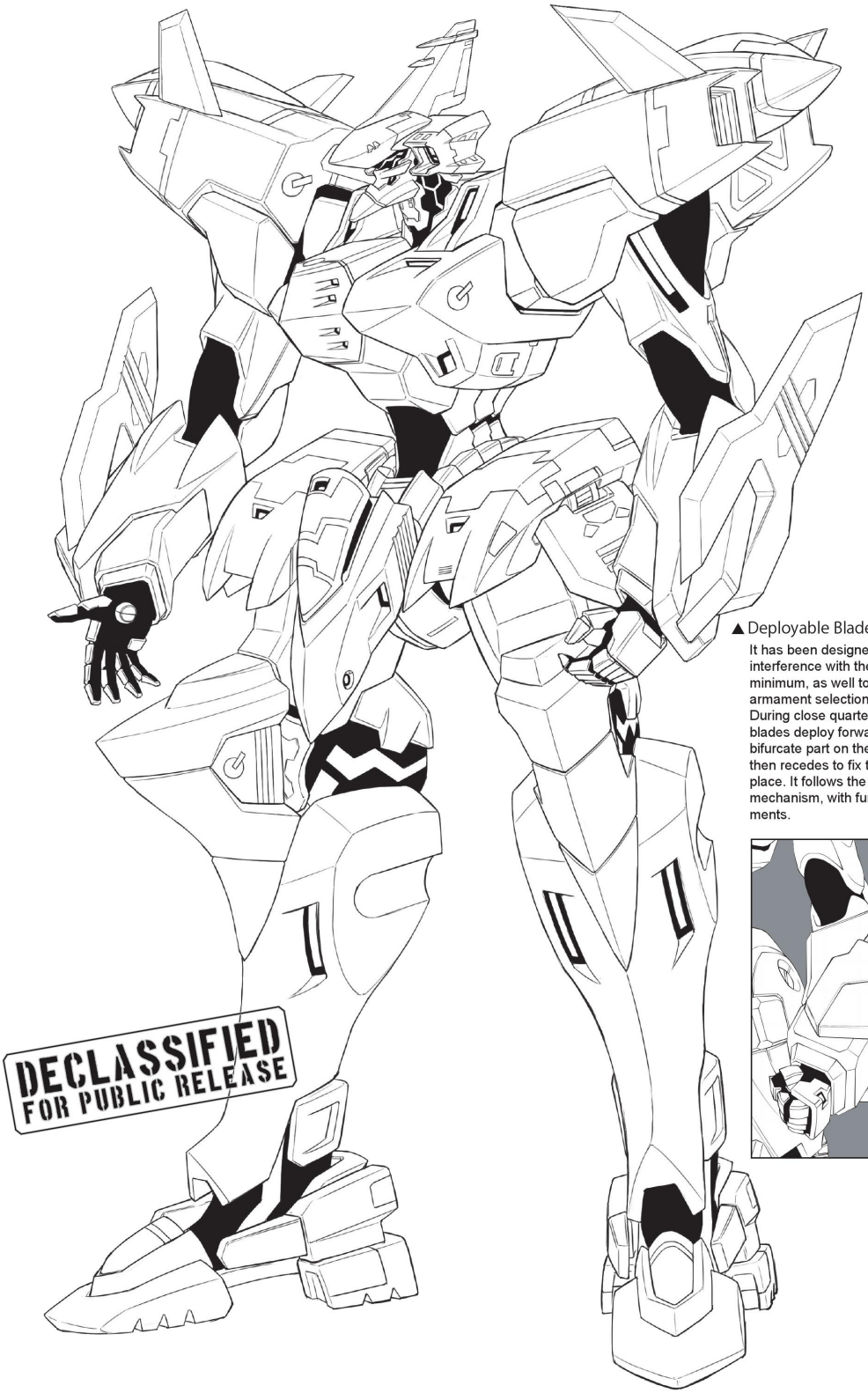
All European next-generation crafts are said to have received 3rd generation technology from Imperial Japan. From top to bottom, the EF-2000 Typhoon, the Rafale, and the Type 97 Fubuki, which is said to be the base model of the two former crafts.

JAS-39 Gripen

Kingdom of Sweden : 3rd Generation Tactical Surface Fighter

▼ Shoulder Block Blade Vane

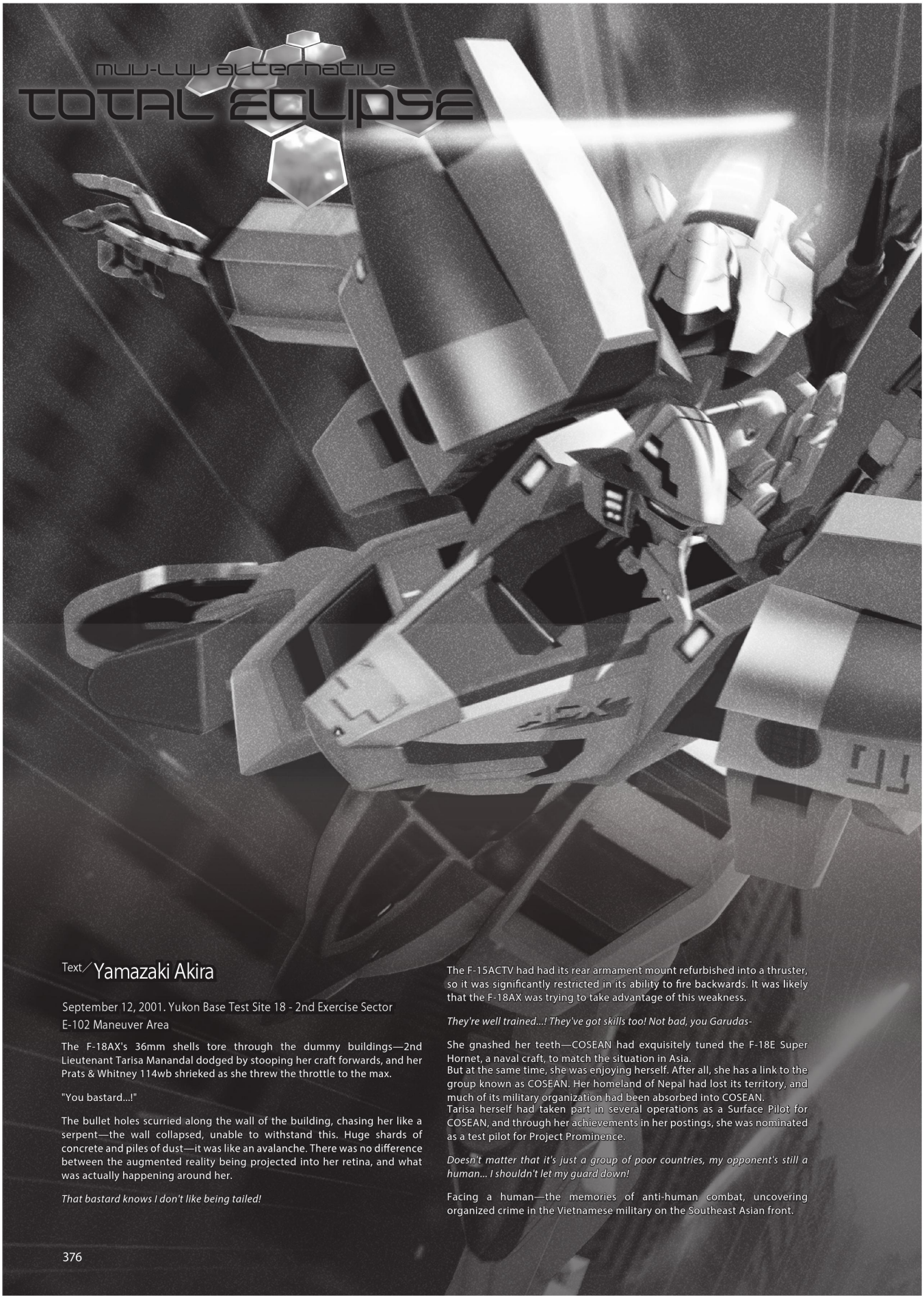
A blade vane with a shallower angle compared to the Su-27 Zhuravlik or the EF-2000 Typhoon. This is the result of matching the angles of the blade vanes on the main arm, for aerodynamic control and close quarters combat.



▲ Deployable Blade Vane

It has been designed to keep interference with the manipulator to a minimum, as well to not limit the armament selection of the main arm. During close quarters combat, the blades deploy forwards using the bifurcate part on their rear, which then recedes to fix the blades in place. It follows the F-5G's mechanism, with further improvements.





Text／Yamazaki Akira

September 12, 2001. Yukon Base Test Site 18 - 2nd Exercise Sector E-102 Maneuver Area

The F-18AX's 36mm shells tore through the dummy buildings—2nd Lieutenant Tarisa Manandal dodged by stooping her craft forwards, and her Prats & Whitney 114wb shrieked as she threw the throttle to the max.

"You bastard...!"

The bullet holes scurried along the wall of the building, chasing her like a serpent—the wall collapsed, unable to withstand this. Huge shards of concrete and piles of dust—it was like an avalanche. There was no difference between the augmented reality being projected into her retina, and what was actually happening around her.

That bastard knows I don't like being tailed!

The F-15ACTV had had its rear armament mount refurbished into a thruster, so it was significantly restricted in its ability to fire backwards. It was likely that the F-18AX was trying to take advantage of this weakness.

They're well trained...! They've got skills too! Not bad, you Garudas-

She gnashed her teeth—COSEAN had exquisitely tuned the F-18E Super Hornet, a naval craft, to match the situation in Asia.
But at the same time, she was enjoying herself. After all, she has a link to the group known as COSEAN. Her homeland of Nepal had lost its territory, and much of its military organization had been absorbed into COSEAN.
Tarisa herself had taken part in several operations as a Surface Pilot for COSEAN, and through her achievements in her postings, she was nominated as a test pilot for Project Prominence.

Doesn't matter that it's just a group of poor countries, my opponent's still a human... I shouldn't let my guard down!

Facing a human—the memories of anti-human combat, uncovering organized crime in the Vietnamese military on the Southeast Asian front.

Tactical Surface Fighter in Illustration#1
High Speed Dirt

Modeled by Sanngoku Musou
KOTOBUKIYA plastic kit (?)
F-18AX



Tactical Surface Fighter in Illustration' is an official story that uses 3DCG and features the weapon—the Tactical Surface Fighter (TSF)—that appears in âge's PC game 'Muv-Luv Alternative' and stories in the same world.

This issue will feature the F-18AX, which would make for an excellent plastic kit by Kotobukiya.

This will depict Tarisa Manandal's perspective of the combat between COSEAN's F-18AX and the F-15ACTV, which was unfortunately cut from Total Eclipse due to issues in producing the needed materials.

This flashback played in the back of her mind. The incident where even TSFs sortied, and which concluded with over a hundred casualties.

Those guys must've received anti-human combat training too…

But in the end, that was nothing more than a terrorist incident that occurred in a corner of Asia. Although it was big in Tarisa's eyes, having taken part in suppressing them, how many people in Yukon Base knew of that incident?
Detours, bypaths, side roads—She tried to shake the F-18AX off by using the buildings as cover, but to little avail.

So persistent—! In that case, I'm gonna...!

"I don't know if you're a Garuda or a Hornet or what, but don't go thinking that you stand a chance against my Eagle—!!"

She turned into a straight road with good visibility, exposing the back of her craft on purpose. Slalom—she shook the craft's rear alluringly, taunting the enemy. Once she saw that the F-18AX had taken the bait, she pushed her craft into full throttle and opened a great distance in a flash.

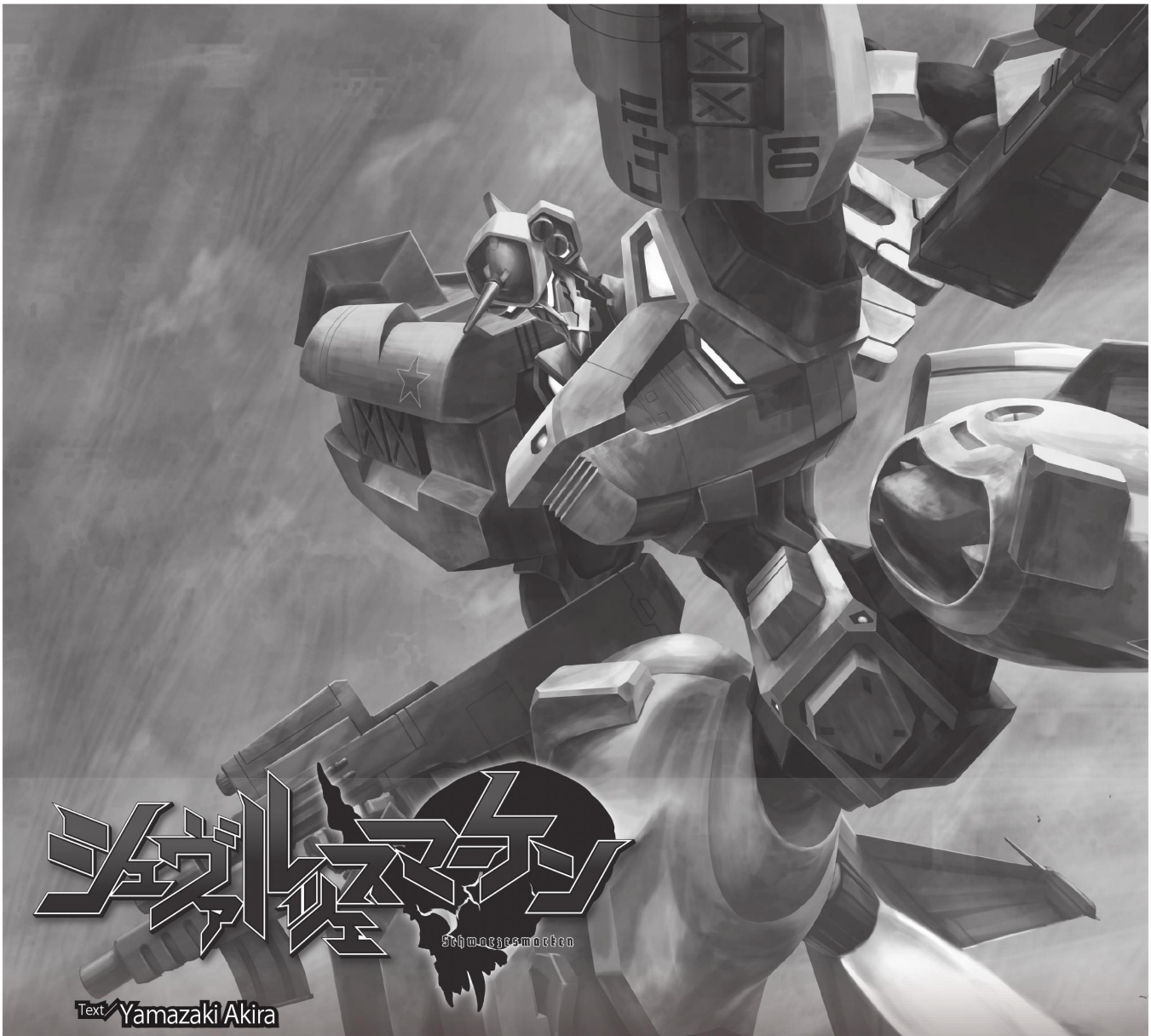
"My craft's better at starting up!!!!"

Even so, the F-18AX persistently followed the F-15 ACTV. It likely didn't want to miss that one-in-a-million opportunity. However, this was the trap that 2nd Lieutenant Tarisa Manandal had set.

It worked last time! My body remembers the timing for the input—!

A Kukri Knife on the surface. Normally, it's an evasive technique for aerial combat, and it isn't something which can be done on the ground.
If you lose balance, you slam into the earth and your craft shatters into pieces. But if you succeed, you could get behind the enemy. She had devoted herself to practicing it, in order to make it real.
The F-18AX in her rear camera started to get bigger and bigger.
With her willpower, she steadied her breath.

"Now!"—2nd Lieutenant Tarisa Manandal unleashed a fierce shout, as her F-15ACTV started to take complex, 3-dimensional movements.



シュヴァルツマクシン

Schwarzmaxim

Text Yamazaki Akira

It was like being surrounded by huge walls. Although the scenery, obstructed by the mountain range, was beautiful from afar, to the German engineer, it was a symbol of the country itself. I had not been given the precise location of this training area.

"Foreigners aren't normally allowed into this sector. So they mightn't let us go home from here." This whisper from my colleague may have not been a joke.

Though we're allies now, it was different during World War II. Of the 3.5 million German countrymen detained in the Soviet Union, only 2.4 million survived. One million, one hundred thousand of them would never see their homeland again.
Inside the military tent was a balding and rather plump Soviet man, staring at his wrist watch. He stood up.

"Please, look at the forest ahead of us, to our right. It will fly, in the sky above."

The man spoke German with a Russian accent. Despite his somewhat strange intonation, he was most likely speaking German out of consideration towards us. But for someone like myself, having lived through the Second World War, this was unsettling. Before long, the distant trees started to sway, and there was a roaring sound as a humanoid shape leapt up from the forest and floated in the sky. Witnessing this bizarre sight, I choked on my own breath.

The giant passed over my head, dragging the flareback of the rocket motor behind it. Its nonsensical form was devoid of aerodynamics. It's likely that they were forcing it to fly through the sheer thrust of the large main engines and with the latest avionics. To myself, an aircraft engineer, it looked like nothing more than blasphemy towards aeromechanics. However, the giant performed an acute turn in midair, and flew past the stands for a second time. That was a maneuver which was impossible to recreate in an aircraft. My head felt light and my stomach churned under the realization that I had become obsolete.

"That is the Su-11. That is our—Sufoni's—Tactical Surface Fighter!"

Following the plump man's exclamation, I could hear sighs from the seats beside me. Something unpleasant welled up in this German engineer's heart.

"As you can see, if you are not worried about fuel consumption, it become possible for a TSF to fly! However, it would be meaningless if they could not do any fighting due to running out of propellant. Therefore, it moves towards the battlefield on foot with its main legs, or by repeatedly jumping!
That, we will show you next!"

His awfully cheerful voice got on my nerves. Moving by jumping—how stupid. Is he saying that it's going to bounce up and down like a doll on a spring? Still, being of humanoid form gives this idea some credence.

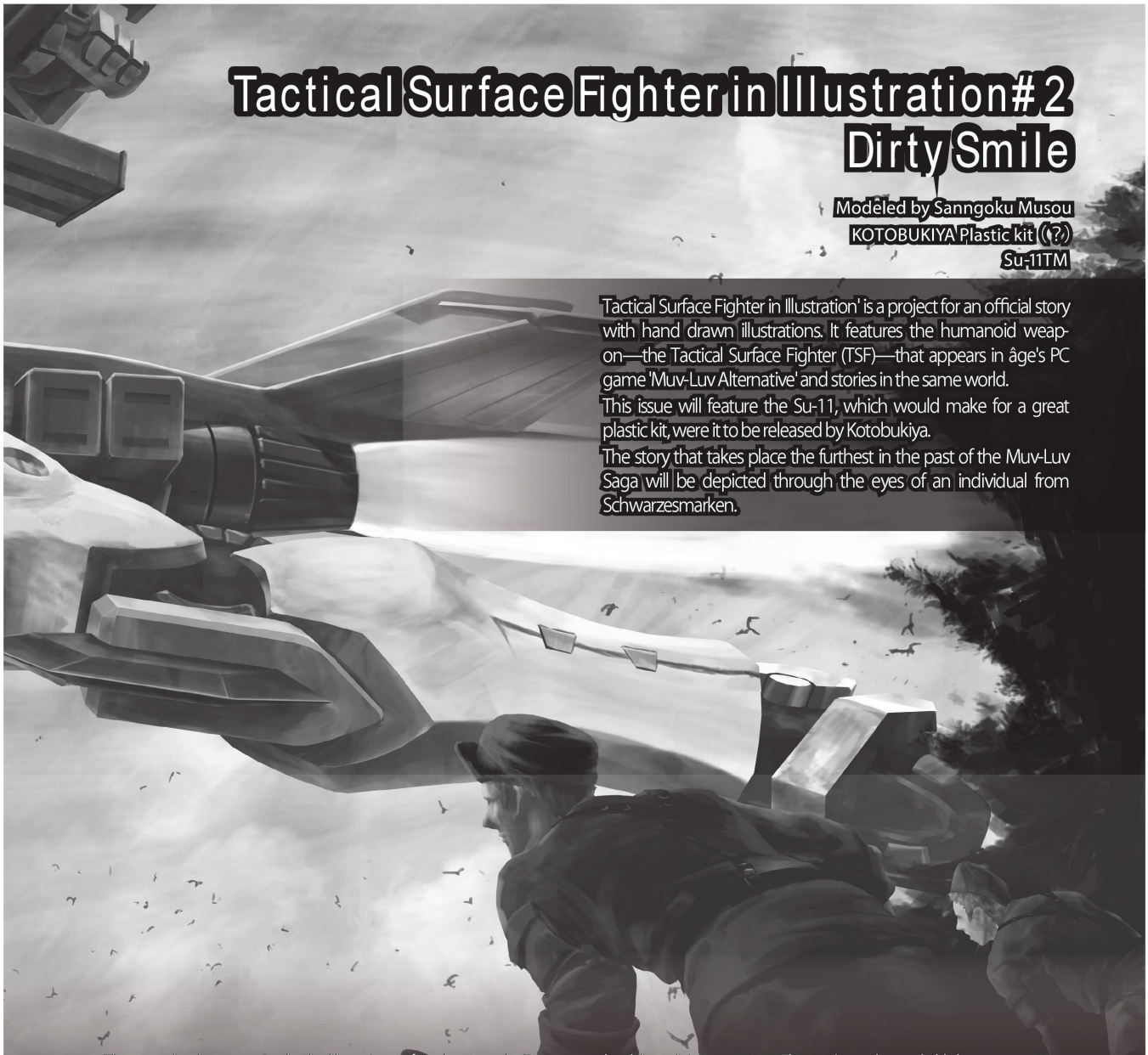
This is nothing like the technology I studied..

I felt both angry and lonely.

Tactical Surface Fighter in Illustration#2
Dirty Smile

Modeled by Sanngoku Musou
KOTOBUKIYA Plastic kit (?)
Su-11TM

Tactical Surface Fighter in Illustration' is a project for an official story with hand drawn illustrations. It features the humanoid weapon—the Tactical Surface Fighter (TSF)—that appears in âge's PC game 'Muv-Luv Alternative' and stories in the same world.
This issue will feature the Su-11, which would make for a great plastic kit, were it to be released by Kotobukiya.
The story that takes place the furthest in the past of the Muv-Luv Saga will be depicted through the eyes of an individual from Schwarzesmarken.



The space development race that had been intensifying between the Eastern and Western Blocs had been developing new technologies one after the other, after large-scale injections of national budget. With the advent of the large MMU that was created in this race, I was aware that a new avenue for humanoid weapons had been opened.
The still photograph of the TSF's prototype that I had been given in East Germany was somehow comical and lacking in realism, but it wasn't the case that I wasn't interested in it at all. While I was still being hounded by work every day, I just didn't have enough time to study new technology. At the time, I...
A vibration—the giant kicked the ground, jumped up, and drew parabolic arcs in the sky. An extremely simple, parabolic maneuver. When it landed, I could feel a slight tremor on the soles of my feet.

"The joint structure in the knee is the key. Articulated joints made from many, many carbonic actuators—they completely absorb the shock when doing the landing. But even so, it takes of many, many dozen times the craft's own weight—instantly. I wonder—how much combat can Mikoyam Guluvich TSFs maintain? After all, they are the much heavier than ours."

The man from Sufoni smiled in a way that was unusual for someone from the Soviet Union. It was unsightly and ugly, and seemed to be self-aggrandizing.
Sufoni, the bureau that invited us, and Mikoyam Guluvich, the current leaders in Soviet TSF development, were the two large design bureaus which existed in the Soviet Union. Mikoyam, with its strong connections to the General Secretary, is slated to end up leading the Soviet Union's TSF development. So Sufoni employed the clever plan of gaining support of neighboring allied countries to make a breakthrough in its situation... This man's standing probably hangs on creating a demand for TSFs in Eastern Europe. That's why he's speaking German and holding onto that forced smile so desperately...

Desperately. That's where my train of thought stopped.

... Am I trying to justify giving up?

The shift in armament systems from aircraft to TSF is inevitable. It had already been a long while since aircraft, the machines I dedicated my life to, were practically neutralized by the laser attacks from that extraterrestrial species. That's why when I saw the TSF firsthand, I thought that people like myself, possessing only aircraft maintenance techniques, would be sent to the corners of society.

However—

It's true that it might be difficult for me to keep up with technology, now that my age is wearing me down. But is it really impossible...? The man from Sufoni answered questions from the multinational group of engineers. That man, perhaps similar in age to myself, must also have been nervous. Balls of sweat rolled down from his brow as he tried his hardest to answer the questions in as much detail as possible. The armaments, the jump unit, its maintenance. I can't laugh at him.

"Jeez, I guess I'll be starting from scratch again when I get home," said German engineer Otto Strauss to himself, as he watched the TSF and the man from Sufoni Design Bureau.



Tank Killer

A-10 Thunderbolt II

"Who's our loves, ladies?" "A-10! A-10! A-10!"
"What do we do on our loves?" "Kill! Kill! Kill the BETA!"



MUV-LUV ALTERNATIVE LD3

“Code:Rebellion”


ILLUSTRATED BY SUSAGANE

Chapter 12

Muv-Luv Alternative Glossary

MUV-LUV ALTERNATIVE Glossary

A

α1A Flight
Alpha1 A Flight

α1A was a flight belonging to the α1 Provisional Squadron, which was formed during the Defense of Yokohama Base to defend Hangar 90, while work was being conducted to stop the reactor. It consisted of four individuals from the 19th Independent Guard Flight of the Imperial Royal Guard. Even after the intense fighting, which crippled the UN tactical armored forces, this flight alone remained operational, demonstrating the high standards of the Imperial Royal Guard's Surface Pilots.



α1B Flight
Alpha1 B Flight

α1B was a flight belonging to the α1 Provisional Squadron, which was formed during the Defense of Yokohama Base to defend Hangar 90. It consists of flight leader Lieutenant Munakata Misae, 2nd Lieutenant Suzumiya Akane, 2nd Lieutenant Mitsurugi Meiya, and 2nd Lieutenant Ayamine Kei.
After the infiltration of the BETA into Hangar 90, they defended the Susano-O Mk. IV, and incorporated Shirogane Takeru into their flight when they regrouped.

α1C Flight
Alpha1 C Flight

α1C Flight was a flight belonging to the α1 Provisional Squadron which was formed during the Defense of Yokohama Base to defend Hangar 90, while work was conducted to stop the reactor. It consisted of flight leader 2nd Lieutenant Kazama Touko, 2nd Lieutenant Sakaki Chizuru, 2nd Lieutenant Yoroi Mikoto, and 2nd Lieutenant Tamase Miki.
Like B Flight, they were tasked with defending the Susano-O Mk. IV. When the plan to lure the BETA towards the base's Reactor was put into effect, 2nd Lieutenant Kazama took on the job of disabling the Susano-O Mk. II's ML drive alone. After 2nd Lieutenant Kazama was injured, 2nd Lieutenant Sakaki took the role of flight leader.

α2 Element
Alpha2 Element

The team that was assigned the task of assisting α3 in shutting down the reactor during the Defense of Yokohama Base.
It consisted of Lieutenant Hayase Mitsuki and 2nd Lieutenant Shirogane Takeru.
They secured the reactor and reconnected the damaged power cables. After α3 was wiped out, Lieutenant Hayase took on the role of destroying the reactor by herself.



α3
Alpha3

The unit that was assigned the task of shutting down the reactor from the control room during the Defense of Yokohama Base. It consisted of Lieutenant Suzumiya Haruka and a security platoon. They were wiped out after being attacked by small strains of BETA that had infiltrated the research facility from the reactor.

A-01

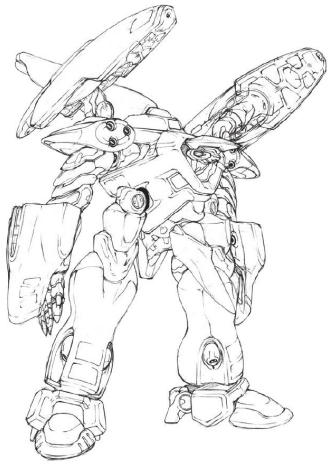
The official title is the Alternative Program 1st Tactical Strike Fighter Unit , however it is commonly referred to as the Special Task Force A-01. A top secret unit that reports directly to Alternative 4's Headquarters, and specifically to Kouzuki Yuuko. Initially, it was the size of a full wing, but due to the high rate of personnel loss, only the 9th Squadron remains, as of December 2001.
It is a dedicated rapid reaction force that only conducts operations directly relevant to Alternative 4, and its ultimate mission is the support and protection of 00 Unit.
Furthermore, another purpose of A-01 is to accrue candidates for 00 Unit.
Its operational call sign is VFA-01, and each individual unit's code is A09-#, with # being a member's number.

A-02

The operational callsign of the 00 Unit and the XG-70b Susano-O Mk. II during Operation 21st. The 02 does not mean it is the second squadron after A-01, rather, it is in reference to the Susano-O Mk. II.

A-6 Intruder

An amphibious Tactical Surface Attacker developed by American manufacturer Grunnan. It is fitted with several fixed armaments, and is designed to undertake assault tactics on coastal regions with assistance from a submarine carrier.



A-10 Thunderbolt II

A TSA produced by American manufacturer Firechild. It has Gatling cannons equipped on both shoulders.

A-12 Avenger

An amphibious TSA that was jointly developed by American manufacturers McDaell Doglam and General Dynomics.

Aerobatic Team

A unit that conducts aerobatic flight using aircraft or TSFs. As top level piloting skills are required for aerobatic teams, only elite individuals are appointed to the role, in most cases.

Aggressor

A unit which plays the role of the enemy in military exercises. It is commonly made up of Surface Pilot instructors experienced in combat tactics. In the IJF, the Fuji Training Corps (Fuji Instruction Group) of the Fuji Garrison assumed this role, identified by the Russian colors Camouflage Pattern on their TSFs.
During the mock battles of the XM3 evaluation exercise held at Yokohama Base, Surface Pilots who had at least 20 sorties were employed as Aggressors against craft equipped with the XM3 OS.

AH
Anti-Human

An abbreviation for anti-human, which refers to anti-personnel equipment or combat.
In contrast to anti-BETA combat where visual deception has no meaning, it should be noted that jamming of optic sensors is often employed in human on human combat.
Audio deception may also be used.

Air Cover

This refers to fire support attacks conducted from the air by military air units such as aircraft or attack helicopters. Humanity's large amount of air power yields a significant advantage over the BETA, who do not have any air power of their own. It forms the foundation of anti-BETA combat tactics.
TSFs prioritize Laser-class BETA as their targets, since Laser classes are able to neutralize air power.

Airborne Operation
12-5 incident

An aerial tactic that involves dropping soldiers or mechanized units from transport planes.
It has an extremely low success rate against the BETA, with the advent of the Laser class, and it is almost never used in anti-BETA battles.
In regards to anti-human combat, the IJMDF Imperial Capital Defense 1st Division's 1st Tactical Armored Regiment of the Coup Forces conducted an airborne operation using TSFs during the 12-5 Incident.
However, in this case, the operation was carried out in hazardous airspace where it was likely to receive laser attacks from BETA, so it could be said that it was not a viable use of the tactic.



12・5 Incident

Aircraft

Machines that are capable of aerial flight.
Due to the Laser class BETA, their effectiveness in the front line was neutralized, hence necessitating the development of TSFs.
However, they are still used in areas where there is no risk of a BETA laser attack.

Airlock

A device that allows the movement of people or objects to or from a pressurized vessel without altering its pressure.
In this case specifically, it refers to the airlock that exists between the main hatch and the control block of the XG-70b Susano-O Mk. II.
On the Susano-O Mk. II, the control block is located directly below the airlock, and it is designed such that the seat block rises or descents via a lift.

Akebono Program

A TSF development and operative technical training program initiated in 1976 by the Imperial Japanese Civil-Military collaboration.

ALM
Anti-Laser Missile

An abbreviation for Anti-Laser Missile.
→Refer to the 'Anti-Laser (AL) Round' Section.

Alternative Program

The collective name of the programs designed to search for ways to communicate with the BETA.
Its parent organization is considered to be the Dignified 12, the UN's secret military research division, which was created in 1959, before the commencement of the BETA invasion.

Alternative 1

The first Alternative Project, which sought to decipher the BETA language and communication methods.
It began in 1966, but was abandoned after hitting a deadlock due to being unable to discern whether or not BETA even had a language in the first place.

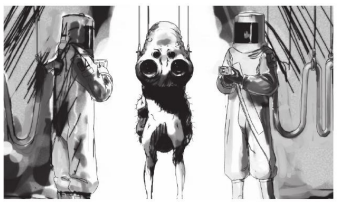


Alternative 2

The Alternative 2 Project commenced in 1968, after the failure of Alternative 1 and the invasion of the BETA. It had the goal of conducting ecological research though the capture of a BETA in order to establish a direct communication method, but its only discovery was that BETA were carbon based life forms.
However, its results led to other outcomes such as the discovery of a hypometabolic enzyme.

Alternative 3

The third Alternative Project commenced in 1973 as an initiative led by the Soviet Union, with the main goal of researching artificial ESP in order to read BETA thought processes.
The completed artificial espers were inserted into hive infiltration operations to conduct readings. However, their survival rate was only 6%. From this research, it was revealed that the BETA were capable of thought and that the BETA did not recognize humans to be sentient life forms.



Alternative 4

Building on the results of Alternative 3, the Japanese led Alternative 4 Project commenced in 1995. Its goal was to gain anti-BETA intelligence through a non-carbon based pseudo-lifeform, the '00 Unit'.
Kouzuki Yuuko was appointed as the executive director of the program, and its headquarters was established at Yokohama Base.

Alternative 5

The backup plan for Alternative 4, which was built upon America's next-generation Alternative Program Proposal.
In 1996, a summons for proposals from each country was called, and in the following year, the US proposal was set in stone.
It involved the evacuation of humanity from Earth, and a counterattack operation against the BETA involving the large-scale use of G-bombs.

Ambush

A combat tactic where after concealing one's fighting capacity and predicting the enemy's movements, a surprise attack is conducted from an advantageous position.
In TSF tactics, it is difficult for BETA types with low enemy detection capabilities to detect a craft that has turned its main engine off, and it becomes possible to conduct an ambush when combining this with the effective use of terrain.
During Operation 21st, A-01 used this tactic and hid in the valleys in the remains of Niibo Dam. They successfully exterminated a group of Destroyer-class BETA that was ahead of the rest, by waiting for them to pass before attacking them from behind.
Also, in anti-TSF combat, as the effectiveness of radar decreases greatly in terrain with lots of cover, ambushes are possible so long as vibrations and emissions are kept to a minimum.

Anti-Laser (AL) Round

A special warhead that disintegrates and creates a heavy metal cloud upon laser interception. It can also refer to a guided missile using this technology.
It is a defensive weapon that takes advantage of the prioritization of aerial targets by Laser class BETA.
Although smaller warheads for TSF use do exist, the heavy metal cloud's effective radius is small and the duration is short.

Arrowhead Formation

A formation taken by TSFs when moving as a unit. Typically, the craft are placed in a pyramid shape, with emphasis placed on the vanguard. The formation places emphasis on forward firepower, penetration, and the speed of the entire unit. It is frequently used for hit and run attacks or when advancing.

Arrowhead-One Formation

A variation on the arrowhead formation.
On May 9th 2001, the Argos Test Flight used it at the joint exercise between each nation's army, held at Yukon Base.

Arrowhead-Two Formation

A variation on the arrowhead formation. During Operation 21st, A-01's role was to defend the planned firing position of A-02, the Susano-O Mk. II. They used this formation to escape from the estimated blast radius of A-02's charged particle cannon. The Third Unified Front's Bao-Feng Test Flight used this formation.

Arrowhead-Three Formation

A variation on the arrowhead formation.
During the 12-5 incident, the UN's 207th Tactical Armored Platoon used this formation when the attempted to escape to the south of Izu Peninsula from Tou Island.
In that specific incident, the TSF operated by Shirogane Takeru, which also carried Her Highness Koubuin Yuuhi, was in the center of the formation.
During Operation 9-6, Blade Company used this formation to retreat after being ambushed by BETA.

Artificial Bio Parts

Technology that allows the growing of human body parts through cloning or tissue culture.
These parts are able to mimic a majority of the functions of a normal human body, such as body temperature and perspiration.
Research progressed rapidly due to the increase in seriously injured personnel due to the BETA war.
The 00 Unit was created using this technology.

ARTMISS

All-Round Terra-defense Missile Interception Satellite System
A component of the 'SHADOW' system. It consists of several satellites orbiting Earth that intercepts BETA landing units with nuclear attacks.

Assault Cannon

A handheld autocannon that is the primary weapon of a TSF.
It is called an assault cannon, due to its resemblance to assault rifles used by foot soldiers.
Various types were developed, based on different nations' operational concepts for TSFs, but the caliber of the shell has been internationally standardized at 36mm and most assault cannons are able to equip a 120mm smoothbore unit.

ATSF Program

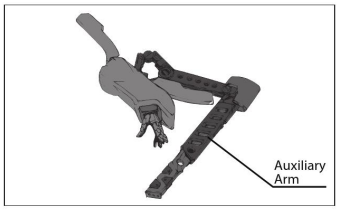
Advanced Tactical Surface Fighter Program
A proof of concept program that was proposed by the US Army in 1983, with the goal of developing next-generation TSFs.
The winner of the competition was the YF-22, with the YF-23 as the runner up.

Autopilot

Technology that allows control of a craft without a pilot's intervention.
In regards to TSFs, the brain waves and myoelectric signals of the Surface Pilot are read by the Fortified Suit, triggering the matching action. The automatic evasion of lasers in response to the irradiation warning alert is based on this function as well.
Although its potential is limited, it is possible to make an unmanned craft battle completely on autopilot.

Auxiliary Arm

An extendable arm structure housed within the blade sheath of the close combat dagger, located under the TSF's forearm. It is used to assist in the drawing of the dagger.
However, for TSFs that have their blade sheaths located on their knees, such as American made TSFs, the Auxiliary Arm structure is instead located there.



Avionics

A portmanteau of 'Aviation' and 'Electronics', it refers to the electronic equipment on TSFs and aircraft.
They are designed to assist with the coordination of the overall control of the craft, such as navigation, communications, radar, and fire control. The progression of avionics is related to the increase in craft reaction speeds.

Axe Squadron

A TSF unit stationed at Yokohama Base.

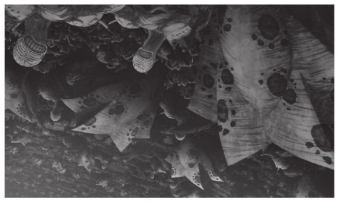
B

Bailout

The act of escaping from a TSF or aircraft that has become immobile.
For TSFs, a rocket motor ejects the control unit, which lands using air cushions. The Surface Pilot then equips a feedback protector and escapes.
However, in cases where the TSF frame deforms due to attacks from the BETA, escaping from the cockpit via ejection becomes impossible, and the surface pilot is required to use the feedback protector to break the cockpit block and escape the craft manually.

BETA
Beings of **E**xtra-**T**errestrial origin and **A**dversaries of the human race

They were discovered on Mars, and have continued to threaten mankind since their first encounter on the Moon.
Through the Alternative Project, it was revealed that they are carbon life forms, and do not recognize that humans are sentient life forms. However, much about them is still shrouded in mystery.



Blade Mount

A movable weapon mounting system placed on the backs of TSFs, designed to carry close-range melee blades.
When removing a melee blade from the mount, through the use of an explosive locking bolt ejection system, it is possible to detach the blade from the mount and move it to the ready position at the same time.

Blast Guard

One of the rear guard positions in a TSF unit.
Its main role is to coordinate with the middle guard to provide support and suppressive fire for the vanguard. Pilots in this role are expected to be excellent snipers and be able to rate the threat levels of targets.
Its general load out includes an assault cannon and supplemental armor, but they are also often equipped with self-guided multi-purpose missile systems, which can fire missiles with anti-laser or various other kinds of warheads.

Blast Vanguard

A position in a TSF unit. Its primary role is to provide the vanguard with supporting fire, but depending on the structure of the formation, this position may not be used.
This position was used in the Soviet Far East Army's Zhar Battalion.

Blind Maneuver

The act of performing high speed movement with a jump unit, without the use of optic sensors. It is a highly advanced TSF maneuver requiring the pilot to have both excellent spatial awareness and control.

Blip

An icon displayed on a radar screen projected on the retinal display, when a friend or foe is detected. Enemies are displayed as red blips. Blips shown are not surveyed solely by the individual's radar. They are also provided to the craft through the combined readings from the radar systems from other fighting and support units and are integrated through a data link.

Blizzard Squadron

A TSF unit stationed at Yokohama Base.
During the Defense of Yokohama Base, they defended the central distribution depot and requested permission to pursue BETA into the main shaft, but this request was refused by HQ.

BM-21 Grad
Град

A 122mm multiple launch rocket system developed by the Soviet Union.
It is widely used in armored units belonging to the Eastern Bloc.

Boost Dash

A TSF maneuver that involves horizontal dashes of a short distance at ground level using the jump unit.

Boost Dive

This refers to the rapid descent action utilizing a jump unit.
It is often used to attack an enemy from above, but if a failure occurs when pulling up before reaching the point of landing, there is a risk of crashing. It hence requires high controlling expertise from the Surface Pilot.

Boost Jump

This refers to the jumping action of a TSF utilizing the propulsion of a jump unit.
It is an action that is central to the high mobility combat and three-dimensional tactics that TSFs excel at, and the control of a craft after using a boost jump is said to reflect the skills of a Surface Pilot.
However, it is common for the allowed height of boost jumping to be restricted in response to BETA warnings.

Boost Rocket

A device equipped to accelerate the shells fired from the 120mm smoothbore cannon of the WS-16C assault cannon.
Through the boost rocket, the 120mm smoothbore cannon can reach a muzzle velocity exceeding the speed of sound.

Boost Vectoring

A TSF maneuver that involves changing the direction of movement without losing speed, by turning the craft around while maintaining use of the jump unit.
During the Defense of Yokohama Base, α2 element used this to pass through the septum of the main shaft.

Bufwite Particle

A particle derived from a substance originating from the BETA. It is a thought-wave transmission element that is approximately 20 microns in size.
It is used by 00 unit for thought wave control, and allows communication with a computer terminal without actual physical contact.
It is also capable of emitting thought waves in reverse phase, which inhibits reading abilities when used in conjunction with a microchip with a registered thought wave pattern.

Bunker Buster

A warhead with high penetrative ability, and that can be used against underground or hard targets.
During Operation Cherry Blossom, they were equipped on the Large VLS launchers on the XG-70d Susano-O Mk. IV, in order to secure an escape route to the main vertical shaft after the destruction of Target Alpha.

C

Cabin

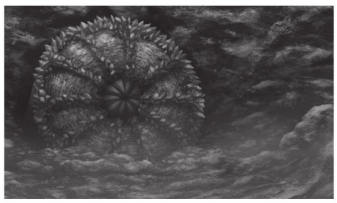
The section on an aircraft or ship that is intended for passenger accommodation.
On the large transport craft An-225 Mriya, which is employed by several countries, the cabin space is sufficient to accommodate 50 personnel.

Canister Shot

A type of 120mm shell.
A fragmentation round that explodes mid-flight after being fired, mainly used against small strains of BETA.

Carrier Class

An unconfirmed super large strain of BETA that was first identified during Operation Cherry Blossom. At the time, it was referred to as an unconfirmed large strain, but eventually, the names 'Carrier', as well as the nickname 'Megaworm', were attributed to it. (As it is unconfirmed, no scientific name has been agreed upon.)
With its abilities to burrow through the ground like a tunnel boring machine, it is hypothesized that its role is to expand the hive's stab.
Furthermore, it can load BETA into its body, leading to theories that it also acts as a carrier for when they invade from deep underground.



Causality Conductor

A pipeline that allows the exchange of causality information—cause and effect—at random, while also being a node for parallel words.
Kouzuki Yuuko calls it 'a broken tap that lets causality information flow out'.
Due to being a Causality Conductor himself, Shirogane Takeru's causality information has been transferring between two parallel worlds.
The strength of the Causality Conductor and the amount of memories that flow through the parallel worlds are directly proportional to people's feelings towards him.

Charged Particle Cannon

A type of kinetic energy weapon that uses electromagnetic forces to repeatedly accelerate and focus ionized microparticles before firing them at a target, damaging it with the heat and kinetic impact.
It is the primary armament of the XG-70, and only became possible to operate due to the Moorcock-Lechte Drive's surplus electrical power.
The muzzle forms a gravity field to control the final convergence and the firing direction of the charged particle cannon.

Chaser

Any unit that follows and assists another in completing an objective.
For example, during performance evaluations for new weapons development, it is common for this to refer to a unit that observes the unit being put under trial and records the results.
If one wishes to raise the accuracy of such records, the number of chasers should be the same as, if not more than the numbers of the units being tested.

CIC
Combat Information Center

Refers to the combat command post in a naval combat vessel.
It is the intelligence center of the ship where tactical information such as radar, sonar, and comms are gathered.
In Operation 21st, the HQ was placed in the CIC of the heavy cruiser Mogami, the fleet's flagship.

Circle Formation

A defensive formation taken by TSF when moving as a unit.
It is a formation that focuses on defense by placing each craft along the shape of a circle. Often, a protection objective is placed in the center of the circle.
Although it is capable of responding to attacks from all directions, it splits the combat potential of the force into different areas, and is therefore unsuited to prolonged battles. It is also difficult to maintain the formation while moving.

Circle-One Formation

A variation on the Circle formation.
During the 12-5 Incident, the 207th Tactical Armored Platoon used this formation after having secured her Highness Koubuin Yuuhi at the Tou Island Fort. Shirogane Takeru's craft, which was carrying the Shogun, was placed in the center of the formation, to conduct an all-around defense.

Circus Squadron

A TSF unit belonging to the 7th Tactical Armored Battalion of Yokohama Base, which operates the F-4 Phantom.
In the Defense of Yokohama Base, they defended the base's central facilities and the front of gate lift B at the central distribution depot.
In the battle at the central distribution depot, Circus-4 tried to clear the corpses of BETA using rocket launchers, but this turned against them, since the corpses that were scattered by the explosions gave the BETA more cover.

CNI System
Communications Navigation and Identification System

It refers to an integrated system constituting part of the avionics, which controls communications, navigation, and identification.
In regards to TSFs, the CNI system handles tasks such as target acquisition and tracking, IFF, and threat level assessment.

Combat Fatigue

A type of PTSD (Post Traumatic Stress Disorder), also referred to as shell shock.
Symptoms include the dampening of emotions, panic, and convulsions of the body due to muscular atrophy.
Treatments to prevent combat fatigue include post-hypnotic suggestion and drug therapy.

Combat Proof

The act of verifying the reliability and capabilities of a weapon by using it in actual battles.
It is also referred to as being 'Battle Proof'.
Combat proofing can sometimes be seen as more trustworthy than the written catalog specifications of weapons. Military forces on the front lines, such as the IJF, have a large advantage since much of their technology has been combat proofed.

Communication Post

An installation that acts as a network terminal for on-base facilities.
Using a relay, the base's communications and data links are able to maintain contact, but when the relay transponder experiences an abnormality, it is possible to connect to the communication post with cables.
When the Defense of Yokohama Base occurred, the on-base networks were cut off, and Alpha2 Element used this method to communicate with HQ.

Condition Red

The highest state of readiness of a military force, where an immediate response to any situation is expected.

CP
Command Post

A command center established according to the requirements of the deployed combat units. In cases where combat operations are out of range from established base facilities, a command vehicle or naval vessel is used as a CP.

CP Officer
Command Post Officer

An intelligence officer who conducts operational control of the theater of battle for combat units, from a base or a command vehicle. It is a position demanding high aptitude in commanding. In A-01, this role is taken by Lieutenant Suzumiya Haruka.



Lieutenant Suzumiya Haruka

Cracker Flight

A TSF flight belonging to the 133rd Regiment of the IJMDF. The craft they use is the Type 77 Gekishin.
All but Cracker-3 were wiped out at the Old Takase-Sawane Defense Line during combat that occurred in Phase 4 of Operation 21st.
Cracker-3 was Captain Isumi Michiru's younger sister, 2nd Lieutenant Isumi Akira.



Cracker Squadron

A UN TSF unit stationed at Yokohama Base.
In the BETA Escape Incident at the base, the unit was forced to repel the BETA while still using training equipment.

CWU-45 Flight Jacket

A regulation flight jacket supplied to UN Force troops.
On the left shoulder is the unit's insignia. The UN mark or Surface Pilot wings are displayed over the left breast.
Soldiers participating in special projects have the project insignia displayed on their right shoulder.



D

DACT

Dissimilar Air Combat Training

It refers to combat exercises conducted between dissimilar craft where a specific situation is reenacted. It is usually used when there is a need to evaluate the difference in the capabilities or unique features of the craft, or to conduct a benchmark.

Daedalus Program

A project to probe extrasolar planets that was commenced in 1950, jointly led by NASA and ESA.

Data Link

A data integration system whereby all information such as TSF sensor data and satellite reconnaissance observation data is shared among friendly forces through a computer system at the rear lines.
Data links on battlefields are sometimes referred to as wide area data links.
In regards to TSF utilization, data links are used to instantly share attitude control, mobility control, or priority target information among craft.

Dead Weight

This refers to anything that unnecessarily weighs the craft down, reducing its movement speed.
For example, this applies to equipped armaments that run out of ammo, or jump units that are out of propellant.
In order to avoid becoming dead weight, these kinds of equipment will generally have a jettison function.

Deck

This refers to the floor of a naval vessel, usually the uppermost.
For TSF carriers, where the TSF holding bays run vertically through the hull, the part of the deck above the bay forms the hatch.

Defense Readiness Condition

Also known as DEFCON, this is a term indicating the state of readiness in a military organization.
It was originally an indicator created by the American Department of Defense, but was later adopted by the UN Forces.
It is divided into 5 levels from 1-5, with lower numbers indicating greater urgency and level of readiness.

Delta Formation

A formation taken by TSF when moving as a unit. Each craft is placed to form a triangle shape, and the rear guard is strengthened by its tight positioning.
With the vanguard leading at the point of the triangle, the formation can easily focus its firepower forward, and is used in situations such as breaching enemy positions.

Delta-Two Formation

A variation of the Delta Formation.
The 207th Surface Pilot Flight Cadet Corps B Squad used this formation when retreating from the front line, during the BETA Escape Incident at Yokohama Base.

Destroyer Class

A strain of BETA with the scientific name 'Impestusis Arma duras', commonly referred to as the 'Ruitare'.
It has an armored shell on its front with a hardness of over 15 Mohs, and can reach a charging speed of over 170km, making it the core of the BETA vanguard.
It has the lowest human detection ability of all BETA. It also lacks the agility to turn quickly, but its defensive capabilities, which allow it to resist even 120mm rounds, makes it a serious threat.
However, as it does not have armor on its back, it is possible to damage it effectively from the rear, even with 36mm rounds.



Diamond Formation

One of the formations used by TSFs, with each individual craft placed along a diamond shape.
It is a formation where the vanguard pushes forward while the middle guard expands out as wings to both sides, and the rear guard at the very end provides support for the rest of the formation. This formation offers a balance between offense and defense.

Diamond-One Formation

A variation on the Diamond formation.
During the 12-5 incident, the US Army's 174th Tactical Armored Battalion's Heat Company used this formation to retreat, while fighting the Imperial Fuji Training Corps.

Dignified 12

A secret military research division of the UN, summoned in 1959.

Dimensional Surface

This refers to a surface where a Rutherford Field and normal space come into contact. Objects coming into contact with a dimensional surface puts strain on the Moorcock-Lechte drive and results in the device becoming unstable.
The XG-70d Susano-O Mk. IV is capable of selectively controlling the dimensional surface of its Rutherford Field.

Dogfight

This refers to combat between fighter planes or TSF. Because the effectiveness of guided missiles is reduced against BETA, many TSF are designed with close-quarters dogfighting in mind.
However, as the operational tactics of the US Armed Forces are intended for the cleanup of BETA after the deployment of a G-bomb, close-quarters dogfighting abilities are not prioritized in American TSFs.
Surface Pilots who excel at dogfighting techniques are called dogfighters.

Dragon Squadron

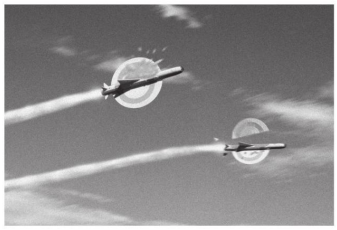
A TSF unit from the 7th Tactical Armored Battalion at Yokohama Base. They operate the F-15J Kagerou.
During the Defense of Yokohama Base, they defended the base's central facilities and the front of gate lift B of the central distribution depot.

Drift

A part of the hive's stab, referring to tunnels that extend outward and laterally from the main shaft.
The expansion of drifts begins in Phase 2. They extend from the main hall, and some reach the surface to create gates.

Drone

An autonomous or remotely controlled drone, often used as a target in practice or exercises.
As BETA lack flight capabilities, drones are used in training exercises focusing on testing the three-dimensional maneuverability of TSFs, or in anti-human training programs.



Drop Tank

An exterior fuel tank that is equipped on aircraft or TSFs.
It is a piece of equipment designed to extend the cruising range of craft. Typically, it is used until it is either depleted or enemies are encountered, at which point it is jettisoned.



E

Eagle Driver

A colloquial term referring to the Surface Pilots of the F-15 Eagle and all of its variants.
This nickname came about from the craft being hailed a masterpiece to the extent of it being called the 'strongest 2nd-generation craft', as well as the fact that it boasted an outstanding number of deployed craft.
However, Eagle Drivers of the US Military differ greatly in combat tactics compared to those of the IJF, who pilot the F-15J (Type 89 TSF) Kagerou, creating large differences in how the craft are usually controlled.



Echo Unit

The task force that was deployed to the eastern side of Sadogashima during Operation 21st. It consists of 3 regiments of UN armored units and 5 tactical armored regiments.
They were assigned the role of landing on Ryotsu Bay to establish a front line, as well as acting as a diversion to the BETA reinforcements that were responding to the northwards advance of the main UN force.
Their other duties involved supporting the hive infiltration unit, and preventing BETA from re-landing on the bay from the surrounding sea regions.

ECTSF Programme

European Collaborative Tactical Surface Fighter Programme

A collaborative development plan for a new TSF that started in 1980 and was undertaken by European nations.

EF-2000 Typhoon

A 3rd-generation TSF that forms the main force of the European Union.
It was developed as part of the ECTSF Project where the EU collaborated on a new type TSF.
Its most noticeable feature is that it has super-carbon blades across its body.
Furthermore, it was built with consideration for cross-oceanic attacks to be conducted at places such as the Dover Straits, and can be equipped with the large caliber Mk-57 Squad Support Gun.



Electronic Deception

This refers to disruption and disturbance of communication or radar through electric waves.
Electronic deception has no use in anti-BETA warfare, as it is unknown how BETA communicate or detect enemies.
Therefore, electronic deception is a tactic designed solely for anti-human combat.

Element / Squad

The smallest TSF military organization unit, consisting of a pair of craft that cover each other.

This tactical unit forms the basis of all current TSF deployments.

Engine

The main power source of a machine.
In the case of a TSF, a fuel cell is used to operate the craft.
The propulsion engine used on a TSF's jump unit is similarly referred to as the engine as well.

ESA
European Space Agency

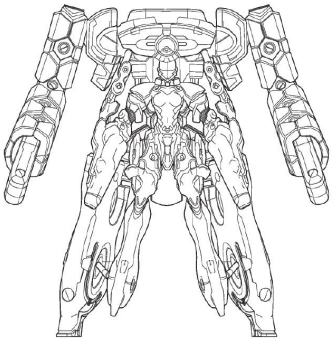
An intergovernmental agency that coordinates space development among western European countries.
In 1950, it initiated the Daedalus Project with NASA, but due to the BETA invasion of Europe, ESA could no longer function.
As a result, NASA (US) alone held the data for the Daedalus Project.

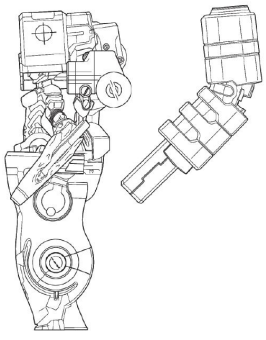
ESP
Extra-Sensory Perception

Specifically referring to the supernatural ability of clairvoyance.
Alternative 3 sought to understand the BETA by researching artificial espers who possessed a observational ability. Specifically, the ability to read thoughts as 'pictures', and emotions as 'colors'. Development was conducted using artificial insemination technologies and DNA manipulation.
Yashiro Kasumi, who was part of Alternative 4, demonstrated artificial ESP of such a high level that she was classified as 6th generation.

Exoskeleton/Feedback Protector

TSF peripheral equipment developed from mechanized infantry armor, which had been based on the MMUs designed for work on the Moon. It is a type of powered suit, and forms the core of the TSF emergency ejection system. Also, it has a wide variety of applications, such as military infantry equipment and civilian construction work.
These are broadly split into two types. An 'Exoskeleton' (ES) is a large-scale suit, whereas a 'Feedback Protector' (FP) is lighter equipment more proportionate to human sizes.

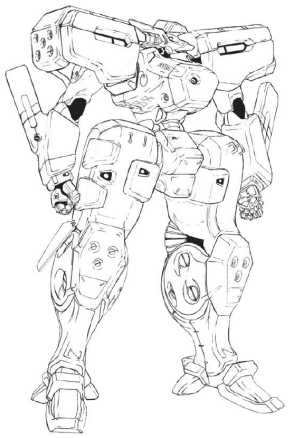




F

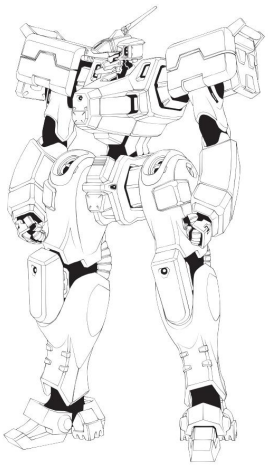
F-4 Phantom

Mankind's first TSF, which was jointly developed by all four branches of the US Military; the Army, Air Force, Navy, and Space Command.
Various countries had licenses for its production in order to meet the demand for anti-BETA weapons, and it laid down the foundations for TSF development.
As a 1st-generation craft, it is seen as obsolete in 2001, yet modernized variants are still being used on many front lines across the world.



F-5 Freedom Fighter

A lightweight TSF developed by American manufacturer Northrock, intended as an export craft.



F-5E/G/I Tornado

A collaborative licensed production craft of the F-5 by England, West Germany and Italy.
Three variants exist, the F-5E, F-5G, and F-5I, used by England, Germany, and Italy respectively.

F-5E Tornado ADV

A strengthened version of the Tornado, which is a licensed production craft of the F-5.

F-5E Tiger II

A strengthened version of Northrock's F-5.

F-5F Kfir

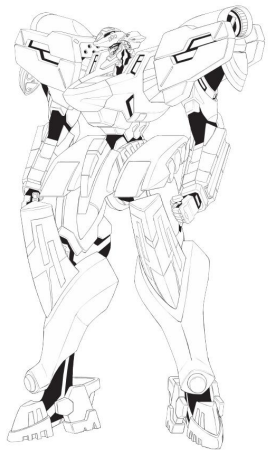
An imported Mirage III refurbished by Israeli manufacturer IEI.

F-11 Tiger

The first ever navy-oriented TSF, developed by American manufacturer Grunnan.

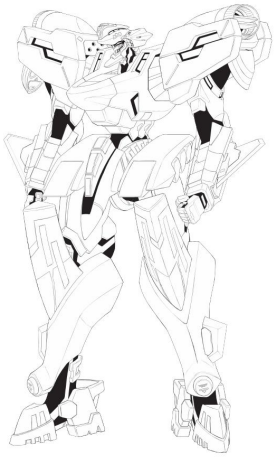
F-14 Tomcat

A 2nd-generation TSF developed by American manufacturer Northrock Grunnan, designed for naval use. It is equipped with long-range Phoenix missiles.



F-14Ex Super Tomcat

A quasi-3rd generation TSF developed in collaboration by the Iranian Army and American manufacturer Northrock Grunnan. It was developed in the 'Super Tomcat Program', which sought to modernize the F-14 Tomcat. The program was conducted as part of Project Prominence, and was operated by the Middle Eastern Coalition Army's Azriel Test Flight.



F-15 Eagle

An all-purpose TSF manufactured by McDaell Doglam as the successor of the F-4 Phantom. Many considered it to be the strongest of all of the 2nd-generation TSFs.
Alongside its well-rounded, exceptional specifications, it also demonstrates excellent expandability, and is easy to produce. Along with its variants, it forms the core of TSF forces internationally.

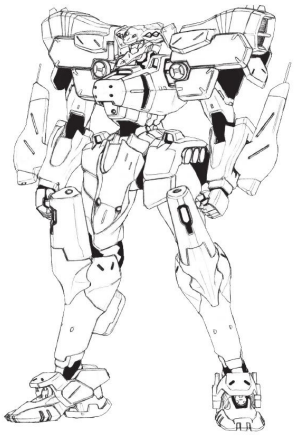
F-15E Strike Eagle

Strike Eagle' is the unofficial nickname of the new production model Eagle, the F-15E (Type E). Although it looks identical to the previous model, approximately 60% of the craft has been redesigned to implement a plethora of 3rd-generation technology.



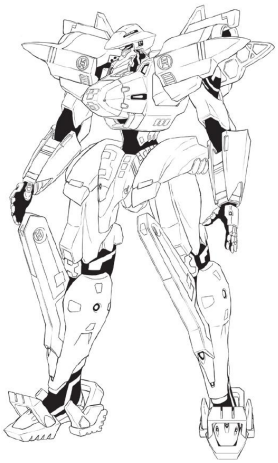
F-15 ACTV Active-Eagle

A proof of concept TSF produced by American manufacturer Boening. It was designed as part of the Phoenix Initiative, which intended to upgrade the F-15 Eagle into a quasi-3rd generation TSF at a low cost.
Its upgrades involved granting it greater maneuverability through the use of low cost modules and refitting its avionics. This gave it increased anti-BETA capabilities.



F-16 Fighting Falcon

A 2nd-generation TSF developed by General Dynomics.
It is a low-cost craft that is based on the US Military's High-Low Mix concept, and was also developed as a substitute export craft to the F-4 and F-5.
Aside from the F-16A, there are many variations including the F-16C, which is equipped with an alternate jump unit.



F-16XL

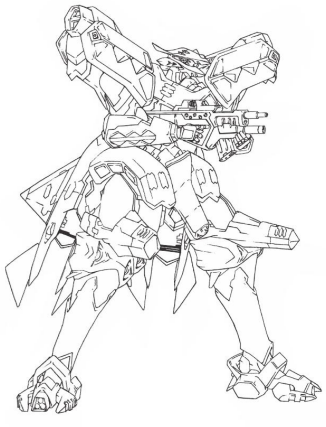
The experimental high mobility version of the F-16, produced by US manufacturer General Dynomics.

F-18E Super Hornet

A modified version of Northrock Grunnan's 2nd-generation TSF, the F-18 Hornet. Its larger size strengthens its defenses and increases its loading capacity.
COSEAN's Garuda Test Flight operated this craft during Project Prominence.

F-22A Raptor

A 3rd-generation TSF developed by American manufacturer Lockweed Mardin.
It earned its nickname 'Battlefield Dominating TSF' since its specifications exceed all other currently existing TSFs.
It was designed with the ability to suppress BETA after the deployment of a G-bomb, and was also designed with excellent stealth capabilities, in consideration of the possibility of anti-TSF combat after the Great BETA War.



F-22A Raptor Engineering and Manufacturer Development (EMD) Phase

A pre-production model of the F-22A Raptor. The midnight blue paint coating, which absorbs microwave radiation, and the large sensor mast on the head unit are points of difference to the mass production model.



F-35 Lightning II

A 3rd-generation TSF that is being collaboratively developed by several nations, led by the US.

Falcon Squadron

A TSF unit stationed at Yokohama Base.
During the BETA Escape Incident at Yokohama Base, they defended the base alongside Shark Squadron.

FBL
Fly By Light

A control system in TSFs that uses fiber optic transmissions.
The principles behind it and its advantages are practically identical to those of OBL.

→Refer to the 'OBL' section

FCS
Fire Control System

This system incorporates functions that control and link weapons, such as assault cannons and guided munitions, to radar and sensors.

Field

This refers to a Rutherford Field.

→Refer to the 'Rutherford Field' section

Fire Support

The act of firing in order to support the units in the vanguard.
This is conducted in a multitude of ways, ranging from the long range bombardment of armored units and fleets, to rear-guard fire support from TSFs.



Five Regent Houses

The five great warrior families of Koubuin, Ikaruga, Saionji, Kujo, and Takatsukasa that set up the Regency Council when imperial rule was restored in Japan in 1867.
It is customary for the Shogun to be appointed by the emperor from among the family heads of the Regent Houses.

First Anti-BETA Jihad

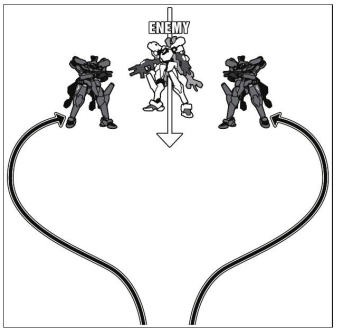
A combined army that was created in 1978 by the Middle Eastern Coalition.

Flame Squadron

A TSF unit from the 7th Tactical Armored Battalion of Yokohama Base.
During the Defense of Yokohama Base, they defended the base's central facilities and the front of gate lift B of the central distribution depot.

Flat Scissors

One of the high mobility tactics used by TSFs, where two or more craft use two-dimensional maneuvers such as boost dashes and surfacing to attack the enemy with a pincer maneuver.
During the 12-5 Incident, units including the 207th Tactical Armored Platoon and E3 of the Coup forces employed this tactic.



Flight / Platoon

A military unit organization term. Flights consist of 2 elements for a total of 4 TSFs.
It is abbreviated to 'FLI / PLT'.

Formation

The tactical arrangement or deployment of moving TSFs.
Formations are a common concept, shared across each country, due to the TSFs having the intended design of being used in combination with each other.

Fort Class

A large strain of BETA. Its scientific name is 'Pergrandium tria corpus', with it commonly being referred to as the 'Gravis'.
It has a unique three torso structure, with 10 legs. Its telson has a tentacle with a stinger boasting a Mohs hardness of over 15. The stinger's tip also secretes a highly acidic solution.
Its movements are slow and its human detection abilities are low, yet its offensive and defensive capabilities are high, and the chance of it hiding smaller classes in its womb makes it very dangerous.



Fox-1

A code word called to friendly units when discharging weapons.
Fox-1 is the code for when missiles of the longest range are used.
The 'Fox' is referring to the phonetic code Foxtrot, and means 'Fire', which shares the same first letter.

Fox-2

A code word called to friendly units when discharging weapons.
Fox-2 is the code used when using weapons with the second longest range such as for 120mm smoothbore cannons.

Fox-3

A code word called to friendly units when discharging weapons.
Fox-3 is the code used when weapons with the lowest firing range are used, such as for 36mm Chain guns.

Full Overhaul

A maintenance method where the craft is completely dismantled, and damaged or worn components are replaced.
The prototype Type 99 Railgun required a full overhaul after every shot to maintain full functionality.

→Refer to the 'Overhaul' section

G

Gamble Squadron

A TSF flight stationed at Yokohama Base. They operate F-4 Phantoms.
During the Defense of Yokohama Base, they were ordered to defend the B gate as it was being sealed, but were wiped out by the invading BETA.

Gantry

Platforms made specifically for the XG-70 Susano-O. They are equipped with cranes and power cables. There are 3 located in Hangar 90 at Yokohama Base.
During the Defense of Yokohama Base, the gantries for the Mk. IV and Mk. II were both destroyed when the BETA infiltrated Hangar 90.

Gate

An opening that connects the surface to the hive's stab.
Gates are constructed during phase 1 (within 20 hours of the initial formation of the hive) and more are laid out as more drifts are made.
In hive capture operations they act as the entrance for the infiltration units, and during Operation Cherry Blossom, an Original Hive gate named SW115 was chosen as the entrance.

G-Bomb

A new type of bomb developed through derived technology based on the Moorcock-Lechte Drive.
Gray Eleven is required for its production.
Its official name is the 'Fifth-Dimensional Effect Bomb', and it works via causing an overreaction in a simplified Moorcock-Lechte reactor, resulting in an explosion.
However, the affected area becomes a semi-permanent gravitational anomaly area, and has the adverse effect of preventing the regrowth of vegetation.

G-Element

Gray Element

A non-terrestrial element of BETA origin.
It was named after its discoverer Professor William Gray of the American Los Alamos research facility. It is hypothesized that hives in phases 5 and beyond produce it through special material refinery plants.

Ghost Squadron

A TSF unit from the 6th UN Orbital Drop Corps. They were among the first to infiltrate the Sadogashima Hive during Operation 21st, but were wiped out by BETA reinforcements.

Grappler Class

A strain that forms the core of BETA forces.
Its scientific name is 'Rrabidusius Bracchium acutas', and is commonly referred to as a 'Medium'. It has high close combat capabilities by utilizing its two forearms, which have a hardness of over 15 on the Mohs scale.
It is mobile, nimble, boasts strong defenses, and has high enemy detection abilities, making it a formidable enemy, even for TSFs. The tooth-like organ on its telson is its sensory organ.



Gray Six

The 6th G-Element of BETA origin to be discovered by humans. It has a negative mass.

Gray Nine

The 9th G-Element of BETA origin to be discovered by humans. At or above room temperature, it is a superconducting material.
Its critical temperature is 309 Kelvin. 00 Unit's brain is composed of this material.

Gray Eleven

The 11th G-Element of BETA origin to be discovered by humans. It is an element allowing for the control of gravity. Aside from being used as the reactant for the Moorcock-Lechte Drive, it is also a component of G-bombs. It is hypothesized that the BETA use this element as building material for their hives.
It is said that approximately 2 metric tons of Gray Eleven was gathered by America from the Athabascan BETA landing unit, and the Alternative 4 Headquarters collected 400kg of Gray Eleven from the Yokohama Hive.

Grizzly Squadron

A UN TSF unit from the 7th Tactical Armored Battalion of Yokohama Base, which operates the F-4 Phantom. In the Defense of Yokohama Base, they protected the base's central facilities and defended the area before gate lift B of the central distribution depot.

Ground Crew

The collective title of people who work at ground-based facilities, such as maintenance and security crews.

Group / Battalion

The second largest organization unit for TSFs, it is composed of 3 squadrons/companies, and consists of 36 craft.
Abbreviated as GRP in air force units, though BAT for battalion is used in army units.

Gun Interceptor

A position in the middle guard of a TSF formation. Its primary role is to provide support and coordinate actions with the vanguard, and they are usually equipped with an assault cannon and a melee blade, as well as supplemental armor.
The position for the gun interceptor on the right wing is usually taken by the squadron leader.

Gun Mount

A movable weapon mounting system placed on the back of TSFs. Assault cannons and melee blades can be equipped using pylons. In the case of an assault cannon, the mount can be operated to fire the cannons both forwards and backwards.
When the equipment is detached from the mounts, the locking bolts are separated using an explosive ejection system.
Gun mount refers to the state where an assault cannon is equipped. When a melee blade is equipped, it is called a blade mount.



Terminator Su-37UB with Gun mounts in the forwards position

Gun Sweeper

A center forward position in the middle guard of a TSF formation.
Its primary role is to provide close range fire support for the vanguard, and in cases where the vanguard is isolated, they also have the role of joining them to suppress enemies.
Their basic loadout is somewhat unbalanced, consisting of a set of 4 assault cannons.

H

Hall

The spaces connecting points of drifts and shafts in a hive's stab.
They begin appearing in phase 2, and function as a holding area for dormant BETA.

Hammerhead Formation

A formation taken by TSF when moving as a unit.
With craft forming a T shape, it excels in providing suppressive firepower in the forward direction. However, there are few craft placed in the rear guard, so it is difficult to respond to attacks from behind or from
the side.

Hammerhead-One Formation

A variation on the Hammer-Head.
During the 12-5 Incident, the 19th Independent Guard Flight took this formation behind the 207th Tactical Armored Platoon, who had taken the Arrowhead-Three formation, to accompany them and strengthen their defense.

Hangar

Typically, this refers to the outdoors housing facilities of TSFs or aircraft.
However, it is also common for TSF housing facilities within bases and in naval vessels to be referred to as hangars.

Hard Landing

This refers to a landing at a sharp angle, which occurs when an aircraft or TSF deviates from standard landing procedures.
It is often used when an abnormality of some sort occurs in a craft.
Furthermore, forcing a landing on enemy controlled airfields is also called a hard landing.

Hawk Squadron

A TSF unit from the 7th Tactical Armored Battalion at Yokohama Base.
They operate the F-15J Kagerou.
During the Defense of Yokohama Base, they defended the base's central facilities.

Head-to-Head

This refers to enemies that are confronting each other directly, face-to-face.
Furthermore, when units mutually clash during melee combat, it is sometimes referred to as this.

Heavy Laser Class

A larger form of the Laser-class BETA.
Its scientific name is the 'Magnus Luxcius unioculus', and it is commonly called 'Magnus Lux'.
It has the ability to fire a high output laser that is effective enough to evaporate the heat-resistant armor plating used on battleships in 10 seconds.
Though slow, it has high defensive capabilities, and it is difficult to effectively damage parts other than its laser emission organ, even with 36mm rounds.



Heavy Metal Cloud

A cloud formed by the heavy metal chaff produced when an AL warhead missile is intercepted and disintegrates.
It has the effect of attenuating the power of lasers, and is hence an effective countermeasure against Laser-class BETA.
However, the issue of serious heavy metal pollution occurring in affected areas has been raised.



HI-MAERF Project

Highly Maneuverable Aeronautic Fortress Project
A Strategic Aeronautic Fortress development project initiated by the American Department of Defense with the goal of being able to invade and suppress a hive on its own.
Three American companies, North Americana, McDaell Doglam, and Lockweed worked on the project, resulting in the development of the prototype XG-70, which boasted high mobility through gravity control, anti-laser defense through a Rutherford Field, and a charged particle cannon made possible due to its large amounts of surplus energy.
However, in the first manned flight, an accident occurred where all 12 test pilots died, resulting in the project being halted.

Hive

A forward base of the BETA that is constructed on the surfaces of planets.
It is a vertical structure made up of a surface monument and underground tunnel complex (the 'stab'). At the deepest part of the subterranean tunnels is the reactor core.
They can be largely split into two types, those made by BETA landing units that have settled on the surface, and those created as part of BETA territorial expansion.
For hives on Earth, the Original Hive at Kashgar is the former type, and all other hives are the latter.
Furthermore, it is said that the diffusion point of a hive is triggered when the number of BETA around a hive reaches saturation.

Horizontal Boost

A maneuver that involves a straight-line boost jump horizontally from the ground.
It is used in a variety of situations, such as high speed movement and dodging, or to close the distance between enemies.



Hornet Squadron

A TSF unit stationed at Yokohama Base.
During the BETA Escape Incident, they defended Yokohama Base alongside Shark Squadron. They requested to retreat to the Hangar in response to BETA pressure, but were given strict orders by HQ to buy time using disruption tactics.

Hound Squadron

A TSF unit stationed at Yokohama Base.

HQ

Headquarters

The location where commands are issued during an operation.
It maintains overall control of the battlefield, and issues orders to each military unit.
However, there are times when decisions made by on-field commanders are prioritized.



HSST

Hyper Surface Shuttle Transporter

'HSST' is the generic term for space shuttles.
The reentry destroyer that is deployed in the IJF is also a type of HSST.
When conducting orbital drop tactics, they are outfitted with anti-laser armor and loaded with two general purpose TSF containers, which allows them to deliver the TSFs where required by the mission.
It is capable of landing and taking off on 60m of surface space.
Although it is referred to as a destroyer, it does not have any fixed armaments.

I

Icarus I

A large unmanned probe launched in 1961 to search for habitable planets for mankind.

IFF

Identification Friend or Foe

Working with a radar, the IFF is a device used to automatically detect whether a target is a friend or foe.
The IFF on TSFs includes an auto-safety feature that prevents the firing of weapons at craft identified as friendly.

IJASF 671st Airlift Corps

An Imperial Force airlift unit stationed at Atsugi base. Their primary role is to conduct airlifts using the Antonof An-225 Mriya.
During the 12-5 incident, they cooperated with the Coup forces, and assisted in the airborne operation of the 1st Capital Defense Division's 1st Tactical Armored Regiment.

IJF 602nd Tactical Armored Squadron

A TSF unit of the Imperial Japanese Force.
During the 12-5 Incident, they fought the vanguard of the Coup forces that came from the Imperial Capital, in the Myojin Mountains.

IJF 604th Tactical Armored Squadron

A TSF unit of the Imperial Japanese Force.
They operate the Type 94 Shiranui and the Type 77 Gekishin.
In the Myojin Mountains, they engaged the vanguard of the Coup force, which had come from the Imperial Capital.

IJF 605th Tactical Armored Squadron

A TSF unit of the Imperial Japanese Force.
During the 12-5 Incident they engaged the Coup force's vanguard in the Myojin Mountains.
However, they let the Coup's E3 Unit slip past at the Izu Skyline ruins near Yamabushi Pass.

IJF Fuji Training Corps

An Imperial experimental development military unit based in the Fuji garrison.
They are also referred to as the Fuji Instruction Group. They are one of the most elite troops of the IJF, taking the role of aggressors, and operate the Type 94 TSF Shiranui using Russian Color.
They were part of the Coup force in the 12-5 Incident, and conducted a siege against the 207th Tactical Armored Platoon at the Hiyakawa Toll Gate Ruins, and also fought against the US Army's 174th Tactical Armored Battalion.

IJMDF Capital Guard Regiment

The common name of the 1st Capital Defense Division's 1st Tactical Armored Regiment.
They are a TSF unit that forms the core of the Mainland Defense Force, and their prestige comes from their elite role of defending the capital.
They operate the Type 94 Shiranui.
During the 12-5 incident, they became the primary force of the Coup and were commanded by Captain Sagiri Naoya.

IJN 4th Tactical Armored Squadron

An Imperial Navy marine unit that took part in Operation 21st.
Once the operation entered phase 3, they secured Old Ohno while the IJN Combined Fleet's Third Squadron provided suppressive fire.

IJN 17th Tactical Armored Squadron

An IJN marine unit that took part in Operation 21st. They operate the Type 81 Wadatsumi and the squadron is comprised of TSA units such as Stingray.
During Phase 2 of the operation, they landed on the Yahata Dunes and secured the bridgehead while the Imperial Combined Fleet's 2nd Squadron provided suppressive fire.

IJN Combined Fleet 2nd Squadron

An Imperial Navy fleet that took part in Operation 21st.
It is formed of vessels including the battleships Shinano, Mino, Kaga and the submarine carrier Shoukou, as well as the TSF carrier Takao.
They provided suppressive fire on the west side of Sadogashima, from Mano Bay, and also supported the landing of Whiskey Unit.

IJN Combined Fleet 3rd Squadron

An Imperial Navy fleet that took part in Operation 21st.
It is formed of ships such as the battleships Yamato and Musashi, and the TSF carrier Ookuma. They provided suppressive fire on the west side of Sadogashima, from Mano Bay, and also supported Echo in their landing.

Impact Guard

A position in the rear guard of a TSF formation. Its primary role is to secure the area the storm vanguard is maneuvering in by providing long-range fire support, usually achieved through the use of a support assault cannon.
Surface Pilots who take up this position are required to have the ability to accurately judge combat situations.

Imperial Royal Guard

An independent military force, which is under the direct control of the Imperial Shogunate.
They are primarily tasked with protecting the Shogun house.
This force is separate from the IJF and is supplied with exclusive equipment, such as their TSFs.
The Royal Guard are an elite unit considered the best in the empire. Depending on situation, they may also undertake operations in collaboration with branches of the nation's military.

Imperial Royal Guard 16th Group

A TSF unit of the Imperial Royal Guard that took part in Operation 21st.
The unit accompanied Whiskey Unit and were

deployed on the western side of Sadogashima. After the failure of the hive infiltration, they held the front line and supported the retreat of Whiskey Unit.
The 19th Independent Guard Flight is also a part of this group.

Imperial Royal Guard 19th Independent Guard Flight

An Imperial Royal Guard unit that was stationed at Yokohama Base, as of 2001.
They use the call sign 'Blood'.
It consists of the platoon leader Lieutenant Tsukuyomi Mana, 2nd Lieutenant Kamiyo Tatsumi, 2nd Lieutenant Tomoe Yukino, and 2nd Lieutenant Ebisu Minagi. They operate the Type 00 Takemikazuchi, and they all demonstrate high aptitude as Surface Pilots.
They were dispatched to Yokohama Base in order to secretly carry out the objective of protecting Mitsurugi Meiya, a relative of the Shogun house.



Indirect Brain-Computer Interface

Technology that is incorporated into the controls of TSF. It was developed as an alternative to linking the human brain directly to a machine. When the pilot makes an action while operating the TSF, sensors in the Surface Pilot Fortified Suit read the brain waves and body bioelectrical patterns of the pilot, which are then compared against a database, before the matching action is triggered. If there are mismatches between the input patterns, they are automatically corrected.

Isumi's Valkyries

The alias of the Special Task Force A-01 serving Alternative 4's headquarters.
The name is taken from the squadron commander, Captain Isumi Michiru, and the fact that all of the members are female Surface Pilots. In battle, the members of the unit call each other 'Valkyrie' followed by a number, while the CP Officer of the unit, Suzumiya Haruka, is called 'Valkyrie-Mom'.



Captain Isumi Michiru, commander of the Isumi Valkyries.

J

J-35 Draken

A refurbishment of the imported Mirage III TSF by Swedish manufacturer SAAG.

JA-37 Viggen

A 2nd-generation TSF created by Swedish manufacturer SAAG, using the J-35 Draken as a base.

JAS-39 Gripen

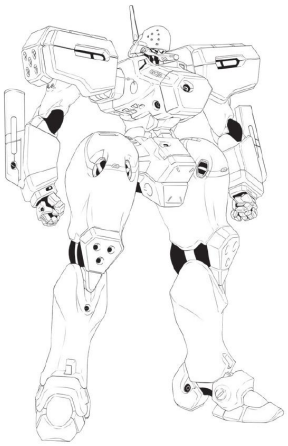
A 3rd-generation TSF developed by Swedish manufacturer SAAG as the successor of the JA-37 Viggen.

Jack Knife

A TSF maneuver that involves using the jump unit's propulsion force to stand up from a collapsed state.
Its name comes from the similar motion of a folding knife.

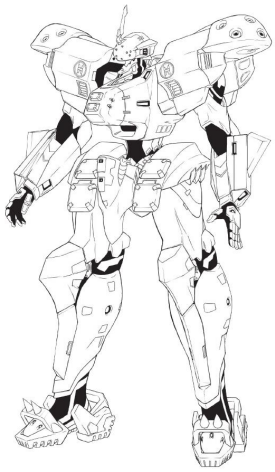
Jian-8

A 1st-generation TSF of the Third United Front. It is a modified Soviet MiG-21.
It has a unique profile due to the round monitor on its head module.



Jian-10

A 2nd-generation TSF collaboratively developed by the Third United Front and Israel, based on the F-16C Fighting Falcon. It has high close-quarters combat capabilities, and excels in its ease of maintenance as well as production.
In Project Prominence, the plan that was pushed forward was for the development of the 'J-10X' variant, which was a prototype to examine the machine's potential for greater close quarters combat capabilities.



Jian-11

A licensed production craft of the Su-27 that was first trialed and then deployed by the Third United Front.

JIVES

Joint Informational and Virtual Exercise System

An abbreviation for 'Joint Informational and Virtual Exercise System'.
It is a system that recreates the situation of a real battle through virtual information, utilizing the various sensors on TSFs and battlefield data links.
This results in an extremely realistic simulation exercise, which is almost indistinguishable from a real battle.



Joker Squadron

A TSF unit that belongs to the 7th Tactical Armored Battalion of Yokohama Base.
During the Defense of Yokohama Base, they defended the base's central facilities and the front of gate lift B of the central distribution depot.

Juliet Group

An air group belonging to Whiskey Unit that was deployed in Operation 21st. It is the J Group according to phonetic code.
They were among the first to infiltrate the hive, but were wiped out by BETA reinforcements.

Jump

This refers to all maneuvers using a TSF's jump unit.
Because TSFs are primarily ground-based weapons but with the characteristics of aircraft, jumping maneuvers are an extremely important tactic. High maneuverability greatly determines the craft's worth.

Jump Unit

The propulsion unit attached to a TSF's waist or back area.
The engine is a hybrid of a rocket motor and a gas turbine. The unit's maneuverability, vectoring nozzle and wings allow for a TSF to fly or conduct jump maneuvers.

K

Ka-50 Chornaya Akula

Черная акула

An attack chopper developed by the Soviet Union. It is a successor of the Mi-24 series, and takes on the role of the Soviet Union's air support.

Kaluza-Klein Echo

A phenomenon that is observed when the Moorcock-Lechte engine is in operation.
During operation 21, when the XG-70b Susano-O Mk. II ceased to operate, a decline in the Kaluza-Klein Echo was observed, and upon the restarting of the engine, an increase was detected.

Kashgar Hive

The first hive to be established on Earth. It is located in Kashgar, in the Xinjiang-Uyghur Autonomous Region of China.
The international name given to it is the Original Hive, and the designation given to it by the IJF is Target 1. By 2001, it had progressed to phase 6, making it the largest hive on Earth. It was the target of Operation Cherry Blossom.

K-FC-1 Ching Kuo

A license production of the F-18 from the Third United Front.

KIA

Killed In Action

A military term referring to a death in battle.

Kilo Group

One of the TSF groups belonging to Whiskey Unit deployed in Operation 21st. Under phonetic codes they fall under the name of K Group. They took the lead as a hive infiltration unit, but were annihilated by BETA reinforcements.

L

Landing Operation

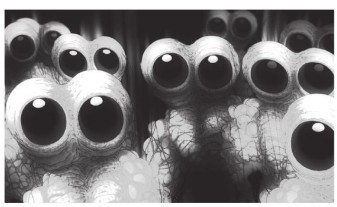
This refers to landing attacks on coastal areas, involving the launch of TSFs and TSAs from submarine carriers or TSF carriers.
Normally, this is accompanied by a simultaneous shore bombardment by a naval fleet to suppress the foe before the landing. In even large-scale operations, orbital bombardments are also involved.

LANDSAT

A satellite network system managed by NASA that monitors Earth.
Since the BETA invasion, it has been used as a reconnaissance satellite network, and the observed data has been useful in research on hives.
The revelation that the G-Element is created from hives past Phase 5 was from data gained by resource observation satellites, such as the LANDSAT.

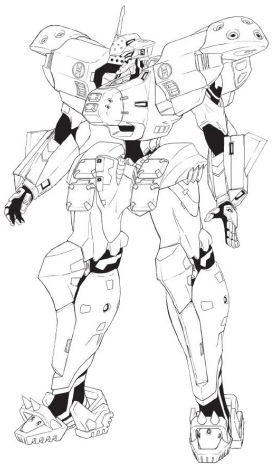
Laser Class

A small strain of BETA. Its scientific name is the 'Luxcius Duo oculus', and it is commonly called a 'Lux'. Although it is agile and has quick reflexes, it has low defensive capabilities, and it is possible to deal with them using 36mm rounds. However, they fire lasers with an output capable of rendering the latest armor materials of TSFs or tanks useless in 5 seconds.



Lavi

A prototype TSF based on the F-16 Fighting Falcon, developed by Israeli manufacturer IEI.



LID

Lunar Intruder Detectors

A surveillance satellite network that was deployed as a part of the BETA landing unit interception system 'SHADOW'.
It aims to quickly detect landing units launched from the surface of the Moon, through Moon-orbiting satellites and the Earth-Moon Lagrange point 2 (L2).

Liger Squadron

A TSF unit from the 7th Tactical Armored Battalion at Yokohama Base.
They operate the F-4 Phantom.
During the Defense of Yokohama Base, they defended the base's central facilities and the front of gate lift B of the central distribution depot.

Lima Group

A group from Whiskey Unit that was deployed in Operation 21st, with its call name being the phonetic code L Group. They were among the first to infiltrate the hive, but were wiped out by BETA reinforcements.

Linear Accelerator

One of the devices that make up the charged particle cannon of the XG-70 Susano-O series craft. It conducts the acceleration of the charged particles.

Lotus Squadron

A TSF unit stationed at Yokohama Base. They operate the F-4 Phantom.
During the Defense of Yokohama Base, they took on the role of defending gate B, which was being sealed off, alongside Tomahawk Flight and Gamble Flight, but were wiped out by the BETA.

M

Main Arm

Of the three pairs of arm systems on a TSF, the two which most resemble human arms are called the main arms.
Their primary use is for wielding main armaments, though there have been cases of using them to assist in flight.
This latter function is most often seen in TSF that have been designed for frontline combat.

Main Hall

A large hall that exists between the reactor block and the drift, hypothesized to be the BETA's replenishment area.
The material of the walls absorbs certain types of electromagnetic waves, creating interference in communications proportional to the distance between units.
The main hall of the Original Hive was approximately 9 billion cubic meters in volume and held approximately 150,000 BETA.
Sometimes the reactor block is also referred to as the main hall, but in the case of the Original Hive, it's called the grand hall.

Main Shaft

A vertical shaft dug from the surface to a hive's reactor block that is attributed as the center of the hive's stab.
Its expansion follows that of the hive's as a whole. Past Phase 3, it goes through the monument and functions as a launch pad for spacecraft.
Although the BETA do not conduct laser attacks inside the hive itself, they do conduct laser attacks upwards through the main shaft.
Because of this, the tactic of assaulting a hive from the main shaft that was attempted in the middle of the war ended in complete failure.

Main Test Pilot

This refers to the lead Surface Pilot that operates a TSF undergoing a development project.
As well as understanding the functions and features of the test craft, these Surface Pilots are expected to operate in a way that contributes to the development of the craft.

Mars Zero

A Phase 9 hive that exists in the Elysium Planes on Mars. It is the largest of all hives identified by mankind.

Mechanized Infantry

Infantry equipped with military grade powered exoskeletons, also known as 'mechanized infantry armor'.
They are deployed in spaces such as cities or interiors where it is difficult to use TSFs, or to provide support to combat vehicles.

Mi-24 Mk2 Crocodile

Крокодил

A Soviet attack chopper.
It is used in the Soviet Far East Defense Line, contributing to air support.

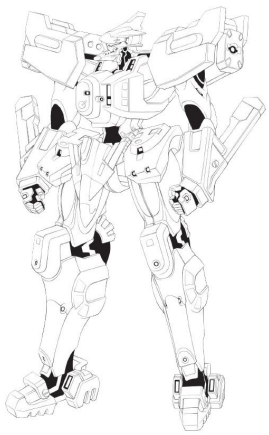
Mi-26 Halo

A heavy transport helicopter developed by the Soviet Union. Its 8-blade rotor is its main feature. It is used by groups such as the Soviet Far East Army.

MiG-23 Cheburashka

Чебурашка

The first domestically produced Soviet TSF. While using the F-4 as a base, it incorporates designs such as increased mobility and the variable wing design of the jump unit, and successfully attained the quasi-2nd generation-al TSF's standard.



MiG-25 Spirt-Voz

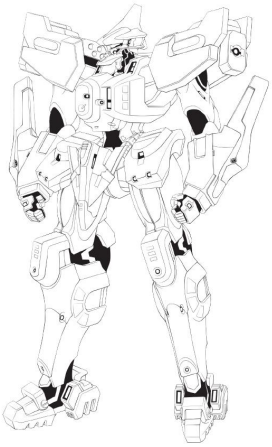
Спирт-Воз

A 2nd-generation TSF developed from the technology of the F-15.
It was developed with the use in the navy in mind, with features such as being able to mount the Phoenix Missile system of the F-14.

MiG-27 Aligatori

Алигатори

An upgraded version of the MiG-23.
Compared to the MiG-23, factors such as maneuverability are greatly improved, but its overall capabilities remain within the 2nd generation level.



MiG-29 Lastochka

Ласточка

A Soviet Union Army 2nd generation TSF that was developed by Mikoyam-Guluvich Design Bureau.
It fought against the Su-27 for the role of the mainline Soviet TSF, but lost the position due to its problems with its ability to mount armaments, and its continuous operating time.
During Project Prominence, a proof of concept craft, the MiG-29OVT, was developed as a strengthened version of the MiG-29. Evaluative exercises with it were conducted by the Graf Test Flight of the Eastern European Socialist Alliance.

MiG-31 Plamya-Lisa

Пламя-Лиса

A 2nd-generation TSF that continued on the development of the MiG-25, by having strengthened close combat capabilities.

Mike Group

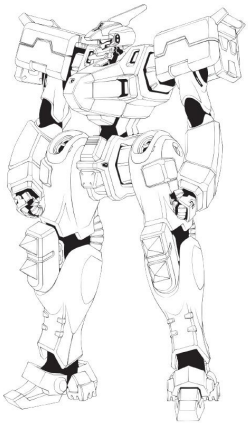
A group from Whiskey Unit that participated in Operation 21st, and is the M Group under phonetic code.
They entered the first stratum of the hive, following the advance party via a different route, but met BETA reinforcements and pulled back to the surface.

Minsk Hive

A hive that was constructed in 1976. The IJF's designation for it is Target 5.
It was the target for Operation Palaiologos, and the internal data of the hive that the Volk Regiment left behind, the 'Volk Data', became the basis for future hive infiltration preparations.
As of 2001, it had reached Phase 5.

Mirage III (F-5F)

A licensed production of the F-5, modified and produced by French manufacturer Dass-Ault.



Mirage 2000

A 2nd-generation TSF developed by French manufacturer Dass-Ault.
It is the successor of the Mirage III, which itself is an improved license production of the F-5 Freedom Fighter.

Mirage 2000 Kai

A strengthened version of the Mirage 2000, made by France's Dass-Ault corporation.
During Project Prominence, the Mirage 2000 Kai, with improved high-speed bombardment capabilities, was used on a test run by the African Union's Duma Flight.

Missile

This refers to all guided, flying munitions.
Missiles are largely ineffective against BETA, since they can be intercepted by Laser classes.
However, it is an effective tactic against BETA groups without Laser classes, or when conducting combat within a hive.
On the other hand, anti-laser missiles are frequently used to take advantage of laser interception.

MLRS
Multiple Launch Rocket System

An abbreviation for Multiple Launch Rocket System, referring to the multi-launch rocket system M270.
In anti-BETA tactics, it takes the role of indirect bombardment alongside fixed guns and naval vessels, and is often placed behind armored units.

MMU
Manned Maneuvering Unit

Originally designed for uses such as construction in space environments, MMUs were later enlarged and developed for military uses such as mechanized infantry armor.

Monument

This refers to a structure of a hive that is built on the surface.
It is a layered structure made of several plate-form materials, and its construction begins during Phase 2.
It is tilted towards the east, and is thought to relate to the launching of BETA spacecraft.

Moorcock-Lechte (ML) Drive

An anti-gravity drive developed during the HI-MAERF Project.
The name is derived from its inventors, Karls Moorcock and Ristomatti Lechte.
It uses Gray Eleven as a fuel, and the huge amount of surplus electricity created via the process of gravity control allows for the operation of the charged particle cannon.
It was used as the engine for the XG-70 Susano-O series.

Morpheus Test

A G-bomb detonation test that was conducted in 1987 as part of the Santa Fe Project.

Mount Pylon

The movable weapon mounting system placed on a TSF's back. They are split up into various specifications based on the equipment.
→Refer to the 'Gun Mount' and 'Blade Mount' sections

Muzzle Flash

A phenomenon observed visually from the muzzle of a rifle, caused by the combustion of gunpowder after firing a bullet.
It is most commonly seen in short barreled weapons or ammunition that uses a large amount of gunpowder.
Certain devices are often implemented to prevent muzzle flash, since it can not only give away a shooter's position, but the resulting light can also blind the shooter, lowering their accuracy.



Мста-С 2S19

This refers to the self-propelled howitzer, S219 Мста-С (MSTA-S), which was developed by the Soviet Union. Its main armament is a 152mm Howitzer.

N

NASA
National Aeronautics and Space Administration

America's space development agency. In 1950, they took on the Daedalus program alongside ESA. They became sole organization controlling all investigational data on extrasolar planets, after the destruction of ESA by the BETA invasion and the decline of eastern space programs.

NCAF-X Program

A conceptual weapon development program with the goal of porting the technology of large MMUs to ground combat weapons for 0 to low-G environments.
Later, it would result in the creation of the F-4.
In 1967, the plan was commenced on a full scale.

NOE
Nap Of the Earth

An abbreviation of “nap of the earth”, referring to low altitude flight. By flying within the shade of a ridge line or buildings, it is possible to avoid laser attacks from BETA. However, aircraft that cannot conduct NOE flight are completely neutralized by Laser-class BETA.



Noise Maker

A type of active decoy that disrupts sonic sensors by producing noises.
TSFs come equipped with sonic sensors for use against BETA, yet this makes them vulnerable to jamming when engaged in anti-human combat.
However, it is difficult for the device to convincingly recreate the operational sounds of TSFs or the propulsion sounds of a jump unit.

November Group

One of the groups from Whiskey Unit that participated in Operation 21st. They are called the N Group under phonetic code.
They infiltrated the first stratum of the hive, following the advance party via a different route, but met BETA reinforcements and retreated to the surface.

O

00 Unit

A non-carbon based pseudo-lifeform that is the core of Alternative 4. It is named 00 as it has zero biological essence and zero life signs.
The quantum conductive brain loaded on the pseudo-lifeform was imprinted with the personality of Kagami Sumika, who was reduced to just a brain and spine after becoming a BETA captive.
Furthermore, in order to gather information from BETA, 00 Unit was given reading and projection abilities beyond those of an artificial esper.



OBL
Operation By Light

A system that converts Surface Pilot's controls and thought processes to optical signals, and transmits them to a computer on the TSF via optic fiber cables to act as an integrated control mechanism.
It has advantages such as being able to transfer large amounts of information at high speed while reducing the size of the mechanisms involved, and it also resists electromagnetic interference. As a result, it is one of the key features supporting 3rd-generation TSFs.

OBW
Operation By Wire

This refers to a system involving the transmission of information between control equipment and mechanical parts by electric cables.
It was used in all TSF up to the end of 2nd generation.

ODL

00 Unit's intra-cranial fluid. It is used to isolate the quantum-conductive brain from all external observation, and also functions as a coolant.
Since it deteriorates from both the passing of time and the operation of the quantum-conductive brain, it must be replaced or purified every 72 hours using special equipment.

Open

This describes a state of wireless communications, whereby information sent will be received by all parties who have the capacity to receive communications.
A channel that is designed to operate in this manner is called an open channel.

Operation '9-6'

An interception operation conducted by the China-Korean allied army, designed to eliminate the large scale BETA group headed towards the Chinese city of Dalian in 1993.
Although the front was broken by the sheer number of BETA, the use of tactical nuclear weaponry in the final phase was able to repel the large scale invasion.
The Continental Expeditionary Forces of Imperial Japan also participated in the operation, providing support on the flanks. However, they lost two battalions when they were ambushed by a BETA force.
2nd Lieutenant Jinguuji Marimo was in the Blade Company of the Imperial Japan Expedition Forces.

Operation '21st'

The operation to capture Target 21, the Sadogashima Hive, which commenced on the 25th of December, 2001.
It was a combined operation undertaken by the UN Force and the IJF, with the goal of stabilizing the Far East Defense Line by neutralizing the Sadogashima Hive. It also sought to conduct tests to verify the effectiveness of Alternative 4's 00 Unit in combat.
The operation was only considered a tentative success, due to the XG-70b Susano-O Mk. II's self-destruction, which destroyed not only the hive, but the entirety of Sadogashima.

Operation 'Cherry Blossom'

The name given to the operation to capture the Original Hive, conducted on the first of January, 2002.
With the goal of suppressing the primary objective Target Alpha, the operation was carried out on a global scale, through the use of orbital drop tactics on the Original Hive, along with simultaneous diversionary attacks on hives that were on the outer edges of the Eurasian continent.
The successful destruction of Target Alpha by A-01 of the infiltration force helped turned the tide of the BETA war in favor of humanity.

Operation 'Gwangju'

An operation conducted in 1998 by the UN and COSEAN forces to provide support for the withdrawal from the Korean Peninsula.
This is where the Lieutenant General Ayamine Incident occurred, an incident that later comes to be known as the Tragedy of Operation Gwangju.

Operation 'Hongqi'

A Kashgar Hive capturing operation conducted by the China-Soviet Combined Forces in 1973 when the landing unit settled in Kashgar.

Operation 'Lucifer'

The large-scale counter-offensive operation undertaken by UN and COSEAN forces, from the 5th to the 9th of August 1999.
Its goal was the capturing of the Yokohama Hive and the retaking of Honshu.
The operation ended in success after the US Military dropped 2 G-bombs on Yokohama Hive. However, the aggressive use of G-bombs created tensions between the US and other countries.

Operation 'Palaiologos'

In the two years since its creation in 1976, the Minsk Hive had progressed to Phase 3 and threatened the safety of Europe's civilian population.
In response, the armies of the North Atlantic Treaty Organization (NATO) and the Warsaw Treaty Organization (WTO) coordinated this operation as the largest counter-offensive of the BETA war.

Operation 'Sledgehammer'

The operation to capture the Cheorwon Hive on the Korean Peninsula, conducted on April the 10th 2003.
It is referred to as Operation 20th by the IJF.
Isumi Akira of the IJF 31st Tactical Armored Unit Lightning Squadron operated the Type 89 Kagerou during the operation.

Operation 'Swaraj'

The operation conducted in 1992 to capture the Bhopal Hive in the Indian subcontinent.
It was conducted as a combined operation by the armies of the UN, the African Union, and COSEAN, though its primary objective was to gather information of hive interiors through Alternative 3's Special TSF intelligence unit.

Operation 'Trident'

An operation led by the US Armed Forces that was drawn up to be executed in the event of Operation Cherry Blossom's Failure.
It was a renaming of Alternative 5's core strategy, Operation Babylon.
The plan involved the deployment of G-bombs on all hives on the Eurasian continent within 18 hours of Operation Cherry Blossom's failure.

Orbital Diver

The title given to the TSF forces that infiltrate hives using orbital drop tactics.
It is said that less than 20% of orbital diver troops return alive. Aside from the resulting battle with BETA on the ground, laser attacks from BETA and accidents occurring from reentry also contributed to the many losses.

Orbital Drop Tactics

A combat tactic that involves the insertion of TSFs from low-Earth orbit into a hive. This tactic is the basis for modern hive capture operations.
Firstly, the TSFs are loaded into reentry shells on a reentry destroyer. Later, the detached reentry shell creates a heavy metal cloud when intercepted by lasers, providing cover for the TSFs to land near the hive.

Over The Horizon Cannon

A super long range cannon that conducts extreme long range precision fire on hives through indirect fire. It is abbreviated as the OTH cannon.
On top of the initial firing percussion in the cartridge chamber, several auxiliary firing chambers placed within the barrel accelerate the shell, allowing its muzzle velocity to reach hyper-sonic speeds.
Furthermore, the shell itself has a bullet trajectory correcting computer and propellant loaded on it, so it is able to correct its flight path and increase its accuracy after being fired, by using controlled explosions.
At Yokohama Base, a prototype 1200mm OTH cannon was being developed, but problems such as the durability of the gun barrel resulted in it being discontinued.



Overhaul

A type of maintenance method that involves completely dismantling a machine and cleaning all of its parts. Afterwards, it is reassembled and given a tune-up to return it to its original condition.
In regards to TSFs, it is a standard operating procedure to conduct an overhaul on the craft after a large-scale battle. For example, A-01 conducted an overhaul lasting 3 entire days after its involvement in Operation 21st.

P

Passive

This often refers to a type of sensor or sonar that works by receiving feedback from other sources.
As the device itself emits no electric waves or sound waves, it excels in being covert.

Phase

The standard by which the scale of a hive is measured, based on the height of the hive's monument.
The scale of the stab associated with the phases are only an average, and there have been cases where the stab's scale does not match that of the monument.
The Yokohama Hive, while being of Phase 2, had a main shaft with a diameter and depth expected of a Phase 4 hive.

Phase 1

The initial stage of a hive structure.
Within 20 hours of landing, the hive reaches this stage, and the main shaft and gate are formed.
Soon after the BETA in the landing unit become active and begin the invasion of the surrounding areas, the reactor of the landing unit is moved to the innermost part of the main shaft.

Phase 2

The stage where the construction of the monument commences, and its height reaches 50m.
Halls and drifts begin forming, and the flat radius of the stab reaches approximately 2km.
Furthermore, the number of BETA belonging to the hive increases exponentially, and approximately 50% of plant life within a 30km surrounding area is lost.
During this stage, the maximum diameter of the main shaft is approximately 100m, and the maximum depth is approximately 350m.

Phase 3

The stage where the monument's height reaches 100m.
A vent is formed at the top of the monument, and gates are moved to the edges of the hive as the drifts widen.
During this stage, the horizontal reach of the stab is approximately 4km, with the maximum depth being approximately 700m.
However, no actual data on the depths of hives past phase 3 exist, and instead are all estimates from resource observation satellites and geological probe data.

Phase 4

The stage where the monument's height reaches 300m.
The surface within the surrounding 40km radius of the hive's center become almost entirely flattened except where volcanoes are present.
During this stage, the radius of the stab is approximately 10km, with the maximum depth being 1200m.
The main shaft's maximum diameter is approximately 200m, and the maximum diameter of drifts is approximately 100m.

Phase 5

The stage where the monument's height reaches 600m.
Beyond this stage, the hive gains the ability to function as a launch facility.
The flat radius of the stab is approximately 30km, and the maximum depth is over 2000m.

Phase 6

The stage where the monument's height passes 1000m.
The radius of the stab is approximately 100km, with the maximum depth being over 4000m.
As of 2001, the Kashgar Original Hive is the only hive on Earth to have reached Phase 6.

Phase 9

The largest hive scale confirmed to exist, as of 2001. The 'Mars Zero' Hive, which exists in the Elysium Planes on Mars, falls under this category.

Phoenix Initiative

The low-cost modification plan of the F-15, commenced in 1999 by American manufacturer Boening.

Phonetic Code

A universally used code that is used to accurately relay information while preventing discrepancies in communication.
The code relays information accurately by using codewords reflecting each letter of the alphabet.

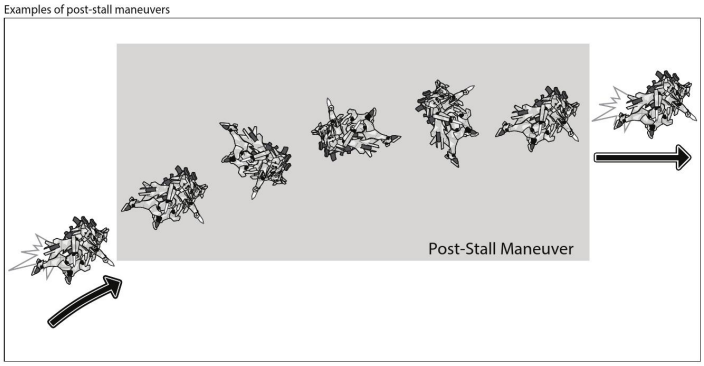
Post-Hypnotic Suggestion

A type of hypnotic treatment that involves giving a subconscious suggestion to a patient in a hypnotic state. The effects of the suggestion persist even after the hypnotic state is broken.
All Surface Pilots are given the treatment to numb their sense of fear. This effect is shown through the use of the post-hypnotic suggestion key named 'Manage'.
However, under the state of post-hypnotic suggestion, there is a decline in decision-making ability, so permission from HQ is required to conduct it.

Post-Stall Maneuver

A maneuver performed while the TSF is stalled.
Craft with fixed armaments, such as the Su-37, can conduct a boost jump while on the stalled trajectory to perform a spin, which slashes BETA with the blades on their arms and legs.

Examples of post-stall maneuvers



Project 1.42/1.44

A prototype TSF developed by the Soviet Union as a successor of the MiG-31.

Projection

A type of ESP ability that allows the transmission of one's thoughts or emotions to another person as 'pictures' or 'colors' respectively.
To try to communicate with BETA, Alternative 3 raised artificial espers with this ability. However, the BETA remained unresponsive.

Prometheus Project

A sub-project under the Daedalus Project that began as an extrasolar planet probing initiative.

PX
Post Exchange

An abbreviation for Post Exchange, referring to stores located within bases.
They are often located beside the mess hall in bases, and together are often referred to as the PX.

Q

Quantum Causality Theory

A theory being researched by Kouzuki Yuuko. Based on this theory, the existence of causality conductors and parallel worlds was hypothesized and then proven.

Quantum-Conductive Brain

An artificial brain composed of Gray Nine.
It uses the same principles as a quantum computer, and has the computing ability surpassing the parallel processing capabilities of 15 billion semiconductors.
During Alternative 4, it was developed as a system to support the foundations of 00 Unit.

R

Rafale

A 3rd-generation TSF that succeeded the Mirage 2000, and was independently developed by Dass-Ault after France withdrew from the ECTSF Program.
It has several visible similarities to the EF-2000 Typhoon, such as the multiple super carbon blades equipped across it.

Rail Gun

A type of firearm that accelerates a shell through magnetic fields created by an electric current's Lorentz force.
Its energy efficiency when firing and the velocities of its bullets are well beyond those of conventional firearms.
The prototype Type 99 rail gun developed by the Empire of Japan's 1st Arsenal Development Authority is a railgun designed for TSFs.

Rapid Deployment Force

This refers to a unit that is always in a ready-to-respond state, in the case of emergency situations.
During the 12-5 Incident, the 7th Fleet of the US Navy, which was deployed at Sagami Bay, was incorporated into the Japanese-based UN Rapid Deployment Force, and responded to the coup forces with the US Army 66th Tactical Armored Battalion.

Rapid Reaction Unit

This refers to units formed in preparation for emergency situations. For these units, lightning fast deployment and mobility are valued.
While these are usually dedicated units that remain on standby within the military organizations, there are cases where they would be organized provisionally under emergency situations.
Of these two types, Alternative 4's A-01 rapid reaction unit is the former. On the other hand, the 1st Tactical Armored Battalion and the 5th Air Support Battalion were designated as the rapid reaction unit during the 12-5 Incident.

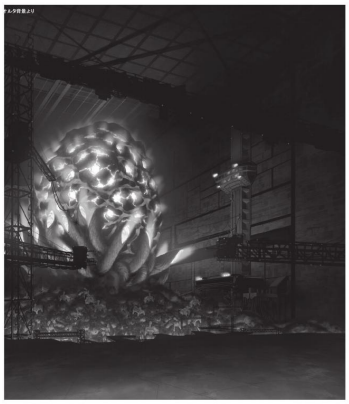
However, in the case of the Yokohama Base, there have been rapid reaction units prepared other than those listed here.

Razor Squadron

A TSF unit from the UN 6th Orbital Drop Corps.
During Operation 21st, they took the lead in the drop to infiltrate the Sadogashima Hive, and took the role of the vanguard lookout for the two squadrons, Sauber and Ghost.
However, they were wiped out by BETA group reinforcements.

Reactor

The part that forms the main power source of a hive, and it is assumed that it also takes the role of a communications device for transferring information between different hives.
In the case of the Original Hive, the reactor core of the landing unit was brought to the deepest point of the hive to become the hive's reactor. However, the origins of reactors in new hives are unknown.



Reading

A type of ESP ability that allows the reading of other's thoughts as 'pictures', and emotions as 'colors'.
However, a target's thoughts cannot be read accurately until within a certain distance.
This ability was given to artificial espers during Alternative 3 to read into BETA thought processes.

Receptor

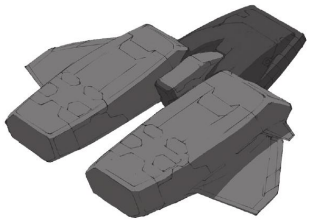
In ESP, this refers to the thought processes of the target of the projection.
If there is no thought process that is a 'receptor', a target would not be able to distinguish a projection from their subconscious thoughts.
Furthermore, under Causality Quantum Theory, the willpower and causality conductor that are used in the trading of causal information between parallel worlds are also referred to as receptors.

Reconnaissance

This refers to all military actions that gather information on the enemy.
Reconnaissance on BETA activity is primarily performed by satellites and HSSTs from space, as Laser classes restrict the use of aircraft.
In human controlled areas, a network of vibration sensors is used to detect any BETA invasions from underground.

Reentry Shell

An armored capsule for TSFs when performing orbital drops.
The heat-resistant armored shell employs the same technology as AL missiles, such that they release a heavy metal cloud when attacked by lasers, hence assisting the dive of its TSF cargo.
Furthermore, if the shell is not intercepted, it goes ahead of the TSF and crashes into the surface, acting as a kinetic energy weapon.
Due to the low survival rate of orbital drop tactics, it has the nickname 'Flying Coffin'.



Regency Council

An organization in the Empire of Japan, which is an institutionalized group of regency position holders with the goal of assisting the emperor's administration.
They are a high class administrative body in the Imperial Diet, with the Shogun being selected from one of the Five Regent Houses to lead the council.

Reserve

This refers to units that were prepared in anticipation of unexpected situations.
Replacement craft prepared for accidents during experimental trials, and surplus units to compensate for losses both fall under this category.

Reticle

It refers to aiming devices such as iron sights on a handgun or the sight lines on a scope.
For fire control systems on TSF, a method of projecting a reticle on the retinal display is used.

Rookie

A nickname for newly appointed Surface Pilots, or those who have yet to experience combat.

Running

This refers to a TSF traversing surfaces using its legs.
It is used in situations to conserve the propellant of a jump unit. It is said that during hive infiltration missions, a TSF is forced to spend 70% of its travel on foot.
The vibrations in the craft rise as the speed increases, making it more difficult to aim, even with corrected, automatic aiming.



Rush Guard

A position in the rear guard of a TSF formation.
The standard loadout includes two standard assault cannons, and one support assault cannon. Its roles are supporting the vanguard and covering the entire formation during long range combat.
Depending on the situation of combat, units in the Blast Guard may be switched over into this position.

Russian Colors

A camouflage pattern used commonly on Soviet Armed Forces craft.
The pattern is a blue based air-superiority camouflage. A similar pattern is used by the IJF Fuji Training Corps on their Type 94 Shiranuis, who typically take on the role of aggressors.

Rutherford Field

A gravity field that results from the gravity control of the Moorcock-Lechte Drive.
By distorting gravity, the field can physically interfere with its surrounding, and it is used for movement control of the XG-70 Susano-O series.
However, if the field receives external interference, the Moorcock-Lechte Drive is required to increase its output to maintain the field, resulting in the overstressing of the drive.

S

S-11

A high-powered bomb that rivals tactical nuclear weapons. Aside from being loaded onto TSFs for the destruction of hive reactors and for self-destruct purposes, it was also used as the warhead on the Susano-O Mk. IV's armor-piercing guided missiles.
Countries that employ TSFs as anti-BETA forces on the frontlines are more likely to equip S-11s. In contrast, the US Armed Forces, which employs TSFs as auxiliary support for G-bombs, do not use the S-11.

Sacrobosco Incident

Referring to an incident where, in 1967, a geological exploration team from the Moon base Plateau 1 encountered BETA and were wiped out.

Sadogashima Hive

The 21st hive, formed on Sadogashima, in the Sea of Japan. As of 2001 it had reached phase 4. The tactical designation given to it by the IJF was 'Target 21'.
It was a threat to the island of Japan, much like the Korean Peninsula's Cheorwon Hive.
Capturing the Sadogashima Hive was the top desire of the IJF ever since the BETA's invasion of Honshu.
During Operation 21st, a loss of control of the Moorcock-Lechte Drive on the XG-70b Susano-O Mk. II caused an explosion the equivalent of approximately 20 G-bombs like those dropped on Yokohama, erasing the entirety of Sadogashima.

Safety

A device that prevents the accidental discharge of guns or the detonation of bombs.
While the safety device is functioning, either the bullet will not be fired, or in some cases, the trigger itself cannot be pulled.
In the case of activating the self-destruct system of the XG-70 Susano-O, the detonation code can only be inputted after the safety device disarming code has been entered and the destruction program initiated.

Salamander Squadron

A naval TSA unit that belongs to the IJN's 4th Tactical Armored Squadron.
The craft they employ is the Type 81 Wadatsumi.
They took part in Operation 21st, and conducted an assault landing on Ryotsu Bay.
They were given the task of securing the bridgehead for Echo Unit.

Santa Fe Project

A top secret G-bomb development program initiated by the US Armed Forces in 1979.

Sauber Squadron

A TSF unit belonging to the 6th UN Orbital Drop Corps. They were among the first to infiltrate the Sadogashima Hive during Operation 21st. Their role was to act as a frontline commander for squadrons such as Ghost and Razor, but like the other squadrons they were wiped out by BETA reinforcements.

Self-Destruction Device

A mechanism used by Surface Pilots when they are no longer able to return alive during hive infiltration missions.
It is a device based around the S-11 high powered bomb, and its official name is the S-11 Self-Destruction System (SDS). The official reason given for this equipment's use is for the destruction of the hive reactors.

Sensor

TSFs are equipped with a multitude of sensors, and they function as the eyes and ears of Surface Pilots.
For example, the vibration sensors equipped on a TSF and on the XG-70 Susano-O Mk. IV can detect up to 40,000 and 200,000 vibration sources respectively.

Sensory Feedback System

One of the features of the Surface Pilot Fortified Suit. It is a system that makes the Surface Pilot not register the shocks, vibrations, or G-forces that result from the movement or combat of their TSF.
By accumulating personal data about the Surface Pilot from the Fortified Suit, it increases the maximum feedback amount.
Furthermore, when running the feedback system with JIVES, the strain that is put on a Surface Pilot can be artificially recreated.

Septum

The large organic gates found at both ends of the drift connecting the main hall and the Target Alpha block in the Original Hive.
It is a type of BETA similar to the living tissue of the hive, and consists of a sustenance supply vessel, a mouth aperture, and a part that functions as the brain.
It opens or closes as a reaction to two types of chemicals, which are secreted upon the stimulation of different electric pulses to the brain.

SES009

To cover up his origins, Shirogane lied that he was the 9th Super Elite Soldier (SES) from the SES Plan, which he claimed was a top secret plan conducted by the UN Force in a secret base at Area 51, Nevada.

SHADOW

Spaceward Hardwares for All-Round Defensive Ordnances and Warheads
It is the generic term for the interception system against BETA landing units that are launched at Earth from the Moon.

Shaft

The vertical routes within a hive's stab that are mainly used to connect halls.
When these tunnels are used as an invasion route in hive infiltration operations, the assaulting unit will make the descent using their jump units.
However, due to fuel limitations, jump units cannot be used frequently when infiltrating a hive, making the use of shafts as an invasion route infrequent.

Shark Squadron

A TSF unit stationed at Yokohama Base.
They were taking the role of aggressors during the XM3 evaluation exercise when the BETA Escape Incident occurred, during which they commanded both Falcon Squadron and Cadet Squad 207B to conduct a defensive battle.

Shogun

The position in Imperial Japan that has full authority over all national affairs.
The Emperor appoints one of the family heads from the Five Regent Houses to be Shogun.
They usually also concurrently serve as the head of the Regency Council and as the IJF's Commander-in-Chief.
However, after Japan's loss against the US in World War II and the resulting American occupation, it has merely become an honorary post. After the BETA invasion, the Shogun's authority was greatly restricted due to the broad interpretation by the military leadership of the position's responsibilities.
However, the broadened definition was rectified after the 12-5 incident, and the Shogun's original authority was returned.
As of 2001, the Shogun is Koubuin Yuuhi.



Koubuin Yuuhi

Short Boost

The act of making precise jump maneuvers using short bursts of the jump unit's propulsion.

Siege of Hive 20

→Refer to Operation 'Sledgehammer'

Silicon-Based Life

An alien life form that created the BETA.
It has been defined as 'a dissipative structure that uses silicon as a base, capable of autoplasty and self-reproduction'.

Sine Project

A project led by Professor William Gray researching the advance technologies of the BETA, which commenced in 1974.

Sleeper Drift

A drift in the hive's stab that has been sealed off by a thin material. Much like a sleeper shaft, it is believed that they were sealed off during the process of hive expansion.

Sleeper Shaft

A shaft in the hive's stab that has been sealed off by a thin material. It is hypothesized that they are tunnels that became unneeded with the expansion of a hive and were closed as a result.

Sniping

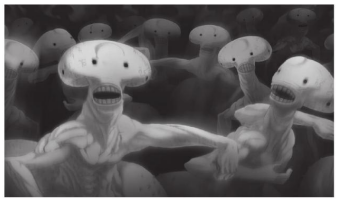
The act of conducting long range shooting from an undetected state. Surface Pilots who excel at this technique are often assigned the impact guard position.

Sobat Squadron

A TSF unit stationed at Yokohama Base.

Soldier Class

The smallest class of BETA, its scientific name is the 'Venarius Caput Grande', and it is commonly referred to as a 'Venator'.
It was a new strain BETA that was first identified in 1995, and of all BETA it is said to have the greatest ability to detect humans. Although not as powerful as the Warrior class, they are nimble and have the arm strength several times that of a human. However, wearing an exoskeleton gives one the advantage over them.



SpaceONE

Space Orbital Nuclear Engager

It is a nuclear attack station built on the Earth-Moon Lagrange Point 1 (L1), as part of the SHADOW anti-BETA landing unit interception system.

Squadron / Company

A medium sized military unit, consisting of 3 Flights / Platoons for a total of 12 TSFs.
It is abbreviated to 'SQD' / 'COY'.

Stingray Squadron

A TSA naval unit from the IJN's 17th Tactical Armored Squadron. The craft they operate is the TSA-Type 81 Wadatsumi.
They took part in Operation 21st, tasked with landing on the Yahata Dunes and securing a bridgehead.

Storm Squadron

A TSF unit stationed at Yokohama Base.

Storm Vanguard

A vanguard position in a TSF formation.
They mainly conduct high mobility close combat, and are often equipped with an assault cannon, supplemental armor, and two melee blades.
They are considered the top performers of TSF units, and although Surface Pilots with excellent combat abilities are assigned the role, it has the lowest survival rate of all of the positions.

Storm Vanguard-One

It refers to the leader of the Storm Vanguard flight, who occupies the head of the formation. Normally, the Surface Pilot who has the highest combat ability among the unit, barring the company commander, is assigned the role, and they are the number 2 of the unit.
In the case of A-01, the position was passed down from Lieutenant Hayase Mitsuki to 2nd Lieutenant Shirogane Takeru.

Strategic Aeronautic Fortress

The name of the large-scale weapon that was developed under the American HI-MAERF project, with the goal of single-handedly invading BETA territory and destroying hives. Although it was designed to have a Moorcock-Lechte anti-gravity Drive and a charged particle cannon, the project was halted, after being unable to overcome certain technological hurdles, and upon the advent of the G-bomb.
The prototype model was mothballed, but was eventually requisitioned for Alternative 4 and became part of the WS-110A initiative.

Strike Vanguard

A vanguard position in a TSF formation.
Like the storm vanguard, it involves high mobility close combat, but depending on the organization of the unit it is sometimes not included (In A-01, there is no Strike Vanguard position). Its standard equipment consists of 2 assault cannons and 2 melee blades.

Stab

A tunnel structure that is a key feature of the underground portions of hives. The BETA continuously expand them outwards from the main hall.
Once a hive reaches Phase 6, their horizontal radius can be greater than approximately 100km and reach depths of over 4000m.

Su-11

An experimental craft, based on the F-5, produced by the Soviet manufacturer Sufoni.

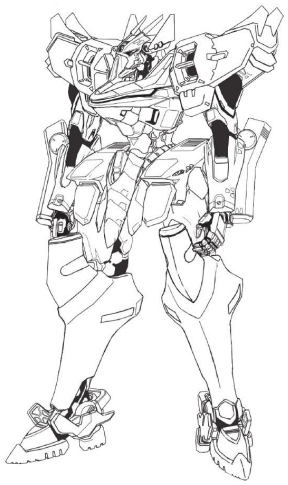
Su-15

A strengthened renewal model of the Su-11 produced by the Soviet manufacturer Sufoni.

Su-27 Zhuravlik

Журавлик

A 2nd-generation TSF produced by Soviet manufacturer Sufoni, developed from technologies shared with them by Northrock Grunnan.
Super-carbon blades, which are equipped on multiple parts of the craft, have since become the standard equipment for Soviet Armed Forces craft.
The Su-27SM, the newest model that was upgraded using performance data from the Su-27M2, has been said to have capabilities comparable to the F-15E.

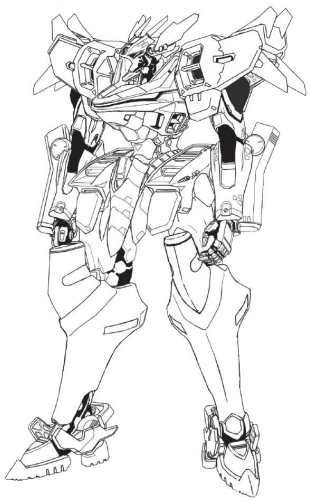


Su-37 Terminator

Терминатор

A quasi-3rd generation TSF of the Soviet Armed Forces that is a formally adopted version of Sufoni's demonstrator craft, the

Su-27M2. Terminator' is its NATO-given name, which has been translated back into Russian as 'Tierminator'.
The Su-37UB has a twin-seater control unit, while the newest production model, the Su-37M2, has a single seat.

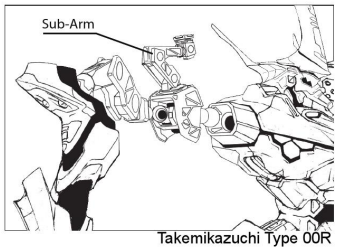


Su-47 Berkut
Беркут

A 3rd-generation TSF currently being developed by the Soviet Union as the successor of the Su-37.

Sub-Arm

A movable arm that holds a TSF's shoulder mounted armor block.
It controls the armor so that it does not interfere with the craft.
In 3rd-generation TSFs, due to the use of lightweight armored material, OBL, and the progression of avionics, the reaction speed of the sub arm has increased.



Takemikazuchi Type 00R

Sub Drift

This refers to all smaller routes that join the drifts in the hive's stab. There are many cases where these drifts cease being used as the hive increases in scale.

Submarine TSA Carrier

A submarine that acts as a carrier for amphibious TSAs. A single A-6 Intruder series craft can be kept in the bow.
They play a significant role in assault landing operations on coastal areas.

Super Carbon

A material that was developed by America in 1956, to be used in the construction of space probes. Due to its high density and hardness, as well as its lightweight, it is used in TSF's close combat knives, melee blades and the blade vanes on various parts of the craft.

Supply Container

A piece of equipment designed for resupply, that carries TSF weapons and ammunition. They are used in large-scale operations, and in enemy controlled territory, they are deployed to the entire battlefield using multi-purpose transport shells. Units can determine the position of the container through a beacon. Resupplying is done in element by element, and the standard operating procedure is to resupply the craft with the most remaining ammunition first.



Support Assault Cannon

A sniping variant of an assault cannon that is equipped on TSFs tasked with the roles of either Rush Guard or Impact Guard.
An example would be the Type 87 Support Assault Cannon used by the Japanese both in the UN Forces and the IJF. It swaps out the 120mm smooth bore unit for a long barrel attachment to extend its range.

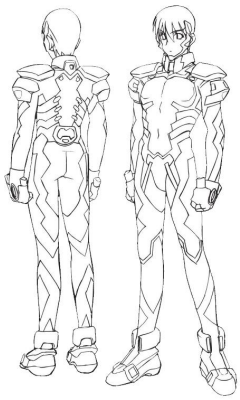

Type 87 Support Assault Cannon

Surface Pilot

The designation of a pilot of a TSF. They are also referred to as 'Eishi' in Japan.
To become a Surface Pilot, an individual must clear a TSF aptitude test after completing the same training that a regular solider undergoes. Furthermore, even after becoming a Surface Pilot, one must overcome the first hurdle known as the 'Eight Minutes of Death'. The resulting lack of Surface Pilots made increased female conscription necessary in order to bolster the numbers.

Surface Pilot Fortified Suit

The peripheral equipment worn by Surface Pilots. It is made of a special, soft material with hard protectors, and has defensive features such as being resistant to impacts and G-forces, as well as life support functions. Additionally, it serves as the interface for controlling TSFs, and many variations of these suits exists.
Type 99 Surface Pilot Fortified Suit



Surfacing

A movement performed by TSFs that allows high speed traversal just above ground level using the jump unit. It is often used in places such as hive interiors where altitude can not be gained.

Susano-O Mk. II

A craft completed by the Alternative 4 engineering division. It was based upon the second prototype of the XG-70 Strategic Aeronautic Fortress originally produced by the American HI-MAERF project.
It moves by using a Moorcock-Lechte Drive to control gravity, and houses other super-technologies such as a Rutherford Field, which can block physical interference and lasers, as well as a Charged Particle Cannon.
However, its intended purpose is the protection of 00 Unit.

Susano-O Mk. IV

The successor of the XG-70b Susano-O Mk. II, it was designed to capture the Original Hive.
It is a 'complete' version of the XG-70 that fulfilled the desired features of being able to independently infiltrate and neutralize a hive, using Alternative 4's technology.
Its planned armaments included 2700mm Railguns and rapid fire 120mm Electromagnetic Induction Launchers (EML) as close-in weapon systems.



Sword Squadron

A TSF unit stationed at Yokohama Base.
They defended against BETA during the BETA Escape Incident at Yokohama Base. Even after suffering significant losses, their request to retreat was rejected by HQ.

Synchrotron Generator

A device that accelerates particles through an electromagnetic field.
The XG-70 Susano-O's charged particle cannon is equipped with this as a component.

Synthetic Foods

Food or ingredient products created artificially through chemistry. Produce that was artificially cultivated, such as vegetables, also generally fall under this category.
Due to the change in the environment on Earth after the BETA invasion, fauna and flora activity declined sharply. Hence, synthetic foods became the main food for humans in most anti-BETA combat areas.
Although the quality of taste varies with the type of food, they are generally considered inferior in attributes such as flavor compared to natural foods across the board.
However, some countries that boast 100% food self-sufficiency, such as America, still use natural foods as of 2001.

T

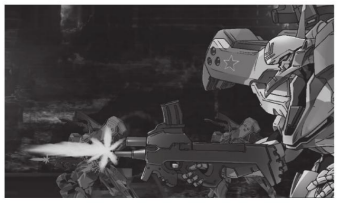
T-80UM-1 Bars

Барс

A main battle tank produced by the Soviet Union. It possesses a 125mm smoothbore cannon as its main armament.
As of 2001, it forms the core of the Soviet Armored Forces.

Tactical Surface Fighter

An anti-BETA weapon that was developed in response to the situation where air power was neutralized by the BETA Laser class, and to the need to capture hives.
Its notable features are its three dimensional maneuverability, designed based on the assumption of situations where air support is impossible, as well as its flexibility, which comes from its humanoid shape.
Technological advancements in TSFs were achieved as the BETA war progressed, and the theories behind their design change as generations pass.



Tank Class

A small strain of BETA with the scientific name 'Manderium ungulam crus', commonly referred to as 'Equus Pedis'.
It excels in human detection and mobility, and can reach maximum speeds of up to 80km/h.
It has low defensive capabilities, and 36mm rounds or the heavy machine guns of infantry can have a reasonable effect on it.
However, it has a jaw strong enough to bite through the armor of TSFs, and it is the strain of BETA that has taken out the most number of TSFs and Surface Pilots.



Target Alpha

The strategic designation given to the Original Hive's superlarge reactor during Operation Cherry Blossom, commonly referred to as the 'core'.
During the operation, it was identified as the controlling entity (superior existence) that stands above all other BETA on Earth, and controls the communication of information between each hive.
It was destroyed after being hit by the charged particle cannon of the Susano-O Mk. IV.



Taxiway

The name given to the roads in airbases that connect the runways with hangars, terminals, and aprons. A plane is 'taxiing' when it moves along the taxiway.

Test Area

This refers to airspace used for training TSF, aircraft, or for experimental flights.
Requests to the appropriate control center must be made in advance before an airspace can be set up.
Training or trials are generally not conducted on the borders of the designated airspace, in order to prevent accidents or information leaks.

Test Pilot

A Surface Pilot who pilots experimental or trial craft during their development.
Several skills are required of these pilots other than the ability to control a TSF, such as an understanding of the craft they are piloting as well as techniques to maintain the safety of the craft in the case of unforeseen situations.

Theater-Level Information Deception

The act of replacing the feedback data of a TSF with false information through the hacking of its control systems.
During Operation Cherry Blossom, 00 Unit was expected to hack the Command HQ of the UN and American forces in order to create false information and lead their hive infiltration units to the surface. In the same operation, Mitsurugi Meiya used this system to create false consort markers.

Thrust Reversal

This refers to the action of reverse propulsion using a thrust reverser or by moving the jump unit as a whole.
It is most commonly used in order to perform rapid braking after a normal propulsion jump, or to quickly retreat backwards.



Thrust Reverser

A thrust reversing device that is placed on jump units, designed to direct the thrust in the opposite direction.
It allows for actions such as slowing down and rearwards movement without altering the direction of the jump unit, increasing overall maneuverability.
In some 3rd-generation TSFs, there are plans to incorporate this function in the body of the TSF itself, to increase its efficiency of thrust control.

Tiger Squadron

A TSF unit stationed at Yokohama Base.

Tomahawk Flight

A TSF unit stationed at Yokohama Base that operates the F-4 Phantom.
During the Defense of Yokohama Base, they took on the role of defending gate B, as it was being sealed, alongside Lotus Squadron and Gamble Flight, but were wiped out by the BETA.

Trail Formation

A single file linear formation taken by TSF when moving as a unit.
It places each craft in a linear column, and is suited for breaking through enemy lines while maintaining movement speed.
However, as the combat potential is spread out longitudinally, it can be difficult to respond to lateral attacks.

Trail-One Formation

A variation on the Trail formation.
During the 12-5 Incident, the 207th Tactical Armored Platoon and the 19th Independent Guard Flight used this formation. They intended to have Shirogane Takeru's craft, carrying Her Highness Koubuin Yuuhi, stay in the center of the formation to break through the Hiyakawa Toll Booth Ruins.

Triad Experiment

An observational verification test, which loaded calculation computer units and TSF parts into reentry shells, before dropping them onto the Indian subcontinent and Northern Europe, to observe how Laser-class BETA would intercept them. It was conducted between 1988 and 1989.

Tropical Battle Dress

A type of army uniform that officers and soldiers wear when conducting military service in tropical areas.
Clothing such as short-sleeved shirts, shorts and tank tops fall under this category too.

TSF Carrier

A large vessel that is designed for the seagoing transport and deployment of TSFs.
They contain TSF hangars with an elevator. IJF TSF carriers are capable of carrying up to 16 TSFs at a time. TSFs are required to use their jump units for takeoffs and landings on the carriers.



Tu-22 Blinder

Шило

A supersonic bomber that was developed by the Soviet Union. Though first built in 1960, it is still in service at the Soviet Far East Defense Line as of 2001.

Tunguska Self-Propelled Anti-Aircraft Weapon

Тунгуска

The 2S6 Tunguska self-propelled anti-aircraft weapon developed by the Soviet Union.
It is equipped with 4 30mm machine guns and 8 small surface-to-air missile tubes.
Against the BETA, which have no air power, it is operated like an anti-personnel weapon by firing the machine guns horizontally.

Type 00 Takemikazuchi

A purely domestic 3rd-generation IJF TSF, made in collaboration by Fugaku Heavy Industries and Onda Technical Research Institute.
It was a craft designed specially for the Imperial Royal Guard at the request of the Shogunate to replace the Zuikaku, and several variations exist for Surface Pilots coming from different standings.
Although it is the world-leading TSF based on its specifications, its serviceability is extremely poor, and it is made with the intention of being used domestically where support is readily available.



Type 77 / F-4J Gekishin

An IJF licensed production of the F-4 Phantom by the three companies Fugaku Heavy Industries, Mitsuhishi Heavy Industries and Kawazaki Heavy Industries.
Its Type 74 PB Blade, and modifications to its arms to use the blade both reflect the IJF's anti-BETA strategy.



Type 87 Maintenance Trailer

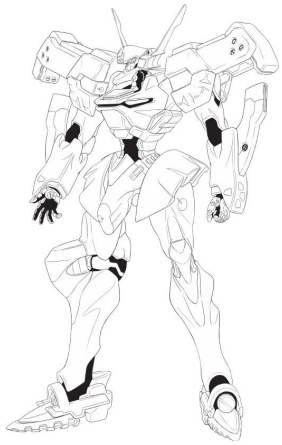
A large-scale transport vehicle designed to carry TSFs on the ground. The trailer portion has a lift which allows a TSF to stand when it is activated. They also contain the equipment to conduct simple maintenance of TSFs.
During the 12-5 Incident, they were used to transport the 207th Tactical Armored Platoon.

Type 89 / F-15J Kagerou

An F-15 produced under license by Fugaku Heavy Industries, Mitsuhishi Heavy Industries, and Kawazaki Heavy Industries, to IJF specifications.
When the development of a purely domestic TSF was met with delays, the Imperial Ministry of Defense made the decision to bring in the F-15 Eagle provisionally, for technological research, before shifting to licensed production of the craft.

Type 94 Shiranui

The first purely domestically produced TSF of the IJF, made by a collaboration of Fugaku Heavy Industries, Mitsuhishi Heavy Industries and Kawazaki Heavy Industries.
As an accumulation of the technologies since the Type 89 Kagerou, it has high level capabilities, making it the earliest 3rd generation unit. However, it lacks the design space for further improvements.

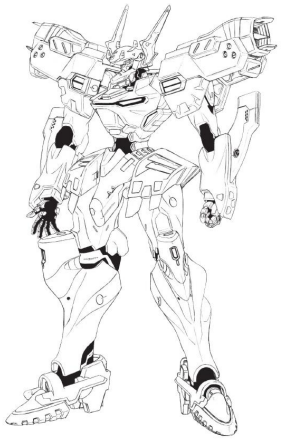


Type 94 Shiranui Type 94-1C

A modified test version of the Type 94 Shiranui. It was the result of the IJF's attempt to upgrade its Shiranui fleet.
Its modifications focused on higher power output and improved armaments, but as a result, its operational time became short and it became a craft with unreliable mobility characteristics. It exemplifies the Type 94's limited extensibility. However, a small number have been placed on the front lines, for the Surface Pilots who can account for its disadvantages.

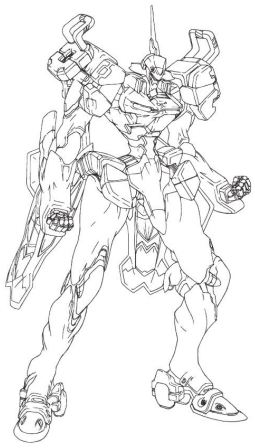
Type 94 Shiranui Second

A proof-of-concept craft that reflects the XFJ Program's modification proposal of the Type 94 TSF Shiranui.
It is based on the Shiranui Type 94-1C, and sought to solve the problems of said craft, with technological cooperation from the American manufacturer Boening.



Type 97 Fubuki

A domestic 3rd-generation TSF of the IJF that was developed by three companies—Fugaku Heavy Industries, Mitsuhishi Heavy Industries, and Kawazaki Heavy Industries—with the goal of researching the fundamental technologies of 3rd-generation TSFs.
Its foundations were the demonstrative craft prototyped from the Type 89 Kagerou's development techniques and the Type 94 Shiranui's development process.
Although it is labeled as an advanced trainer craft, if the low output of the engine was ignored, it would be a craft well capable of lasting in actual combat.



U

UN
United Nations

An abbreviation of United Nations, an international organization that was established after WW2.
It was formed by the victorious countries of that war, but in reality is an organization led by the US. It also acts as a refuge for countries that lost their land to the war with BETA.

UN 207th Surface Pilot Training Corps

Cadets enrolled in the 207th Yokohama Base Surface Pilot Training Academy are placed in this unit. They are part of the UN Pacific Ocean 11th Force.
As the 207th Surface Pilot Training Academy is also a facility that cultivates candidates for 00 Unit, the cadets also act as a reserve force for A-01.

UN 207th Tactical Armored Platoon

The name given to the UN 207th Surface Pilot Training Corps B Squad when they were included in the UN Rapid Deployment Force during the 12-5 Incident.
Sergeant Jinguuji Marimo, who was the instructor, temporarily took the role of platoon commander.
The cadets deployed in the Type 97 training craft Fubuki, whereas Sergeant Jinguji deployed in the Type 77 Gekishin.
They secured Her Highness Koubuin Yuuhi at the Tou Island Fort, at which they were assigned rearguard, before commencing an escape plan down Izu Peninsula.

UN 6th Orbital Drop Corps

A UN Force unit that participated in Operation 21st. It is made up of squadrons such as Sauber Squadron, Razor Squadron, Ghost Squadron, and Aquila Squadron.
In phase 4 of the operation they conducted an orbital drop to the Sadogashima Hive, but were wiped out after being attacked by BETA reinforcements.
The BETA attack and the self-destruction of the XG-70b Susano-O Mk. II resulted in the total loss of the unit, with no survivors.



Sauber Squadron

UN Forces

A military organization that is composed of various armies from UN member states.
Although there is sometimes conflict between individual nations, together they undertake the role of an international anti-BETA army.
The right to command the forces is given to individual countries based on the scale of the operation. However, in the case of the Alternative Program, command is granted to the country leading the program.

UN Pacific Fleet

The UN naval fleet that participated in Operation 21st, which consists of the battleships USS Iowa, USS New Jersey, USS Missouri, USS Illinois, and USS Kentucky.
They were placed on the eastern side of Sadogashima, conducting suppressive fire from Ryotsu Bay and landing support for Echo Unit.

Unknown

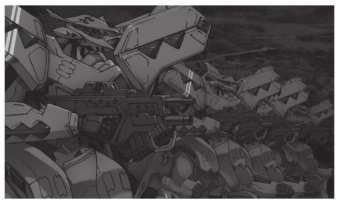
A unit that has not been identified and is of unknown allegiance.
If it is referring to a BETA, the target's details are determined by the seismic-acoustic vibration signatures, and through the use of a classification filter.
On the other hand, when it is referring to a TSF or any other weapon, it is possible to verify its identification code by accessing the reference database through the data link to identify the craft.

US Army 66th Tactical Armored Battalion

A TSF unit of the US Armed Forces.
The commander of the battalion is Major Alfred Walken, and they operate the F-22A Raptor and the F-15E Strike Eagle.
During the 12-5 incident they were incorporated into the UN's Rapid Deployment Force and assisted in the escape of the 207th Tactical Armored Platoon.

US Army 108th Tactical Armored Battalion

A TSF unit of the US Armed Forces.
During the 12-5 incident they were incorporated into the UN's Rapid Deployment Force. After meeting up with the 207th Tactical Armored Platoon, they initiated a diversionary attack on the Coup's E3 Unit, which was heading southwards down the Izu Skyline Trail.



US Army 174th Tactical Armored Battalion

A TSF unit of the US Armed Forces that was incorporated into the UN's Rapid Deployment Force during the 12-5 incident.
They established a defense line at the Hiyakawa Toll Gate Ruins, and fought the Coup's E1 Unit (The Fuji Training Corps).

V

Valkyries

An alternate name for A-01.
→See Isumi's Valkyries

Vancouver Agreement

An international treaty that was issued in 1979 by the UN Security Council. It outlines the UN's command authority in the anti-BETA war.

Vent

A hole that is formed on the top of the monument, once a hive reaches Phase 3.
This results in the main shaft and hive reactor block having direct access to the skies.
It is assumed that it is used to launch BETA spacecraft.

Vertical Boost

This refers to a vertical propulsion jump using a jump unit. As there is a high risk of receiving a laser attack the moment the craft enters the altitude of the laser irradiation danger zone, there are few opportunities for this maneuver to be used.

Vertical Turn

A TSF maneuver that uses a jump unit to conduct a rapid turn around the vertical axis.

Viking I

A Mars probing satellite built by the US.
In 1958, it discovered new life on Mars.

Vitals Monitor

A device located on the Surface Pilot Fortified Suit that constantly measures the Surface Pilot's vital signs.
The vital monitor information is sent through a data link to consorts or the CP, and becomes a method of monitoring the state of a battle.

VLS
Vertical Launching System

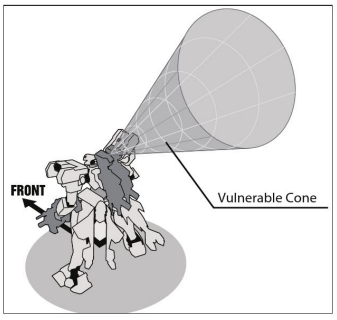
An abbreviation for the Vertical Launch System for missiles that are located on equipment such as military fleet vessels.
Often, the launch tube is located in the hull, and the missile is launched vertically from an upper hatch, and is then guided mid-air towards the target.
On the XG-70d Susano-O Mk. IV, there are 12 multi-purpose VLS launchers containing 36 launch tubes each, and 2 Large VLS launchers containing 16 launch tubes each.

Volk Data

The observational data of a hive stab, left by the Soviet Army 43rd Tactical Armored Division 'Volk', which pushed into the Minsk Hive during Operation Palaiologos in 1978.
Data from that time only went up to middle stratum. However, once the Yokohama hive was suppressed, its structure was used to renew the data, and it became possible to recreate hive interiors using a simulator.
This data has since then been used in hive infiltration training, and has contributed greatly to an increase in the proficiency of Surface Pilots.

Vulnerable Cone

It refers to a cone shaped region behind each craft. As the name suggests, it is the zone that is most vulnerable for the humanoid TSFs, and allowing an enemy into this space can prove fatal.



W

Warrior Class

One of the BETA's small strains with the scientific name 'Agilisis Naris Prolix', and common name 'Barrus Naris'.
Although the single tentacle, also known as the 'arm', that extends from the front of its head has enough strength to tear a person's head from their body, it poses no threat to a TSF.
It possible to deal with them using hand gun or rifle ammunition used by infantry, but they are extremely agile, and it would prove difficult to maintain accurate fire on them.

Wedge Formation

A formation taken by TSF when moving as a unit. In this formation, craft are placed in a V shape with the point facing the target, and it is used to advance forward while pouring fire towards a wide front.

Wedge-One Formation

A variation on the Wedge formation.
The Royal Guard's 'Whitefang' squadron utilized it when conducting a simulated hive infiltration using the prototype type-99 railgun.
The Soviet Far East Zhar Battalion used this formation.

Whiskey Unit

The force that was sent into the western area of Sadogashima during Operation 21st. It consisted of 4 IJF armored divisions and 10 TSF tactical armored regiments.
After landing at Mano Bay and establishing a front, its main forces headed west to Old Sawane to divert BETA reinforcements.
The Juliet, Kilo, Lima, Mike, and November TSF Groups of Whiskey Unit entered the hive, but were wiped out by BETA reinforcements.
Also part of Whiskey Unit is Cracker Squadron, from the 133rd Regiment of the IJMDF. Isumi Michiru's younger sister, 2nd Lieutenant Isumi Akira, belongs to Cracker Squadron.

Whitefang

The alias of a TSF unit from the Imperial Royal Guard. The squadron commander is Lieutenant Takamura Yui, and the adjutant is Lieutenant Amemiya.
They were involved in the development of the prototype Type 99 railgun, participating in its simulator demonstrations, and its 2nd stage live fire trials.



Wing / Regiment

A Wing or Regiment is the largest military organization unit, commonly consisting of three Groups or Battalions for a total of 108 TSFs. It is usually abbreviated to 'WING', though 'REG' is also used.

Wing Formation

A formation taken by TSF when moving as a unit. It involves creating a V with both wings facing forwards. It is ideal for holding the front line, or defeating a single enemy unit, as it allows for luring the target between the two wings and then attacking them from the sides. However, as each craft is spread out, it becomes slightly harder to move collectively compared to tighter formations, and is not suited to high speed movement.

Wing-Three Formation

A variation on the Wing formation.
During the 12-5 incident, this formation was used by unit E3 of the Coup forces, which had engaged the US Army 66th Tactical Armored Battalion A Squadron at Yamabushi Pass.

Wing-Double Formation

A formation taken by TSF when moving as a unit. Starting with the original V shape of the Wing Formation, the middle advances forwards, creating a W shape.
This W is made up of 2 Vs that are smaller than that of Wing Formation. Hence, it has it has less potential to surround and eliminate an individual target. However, it is suited to pushing the front line forwards.

Wing-Double-Five Formation

A variation on the wing formation.
During Operation 21st, the 16th Imperial Royal Guard Corps used this formation to push up on the Old Takase-Sawane Defense Line.

World War II

The second World War was fought by the Axis powers of Germany, Japan, and Italy against the Allies, America, the Soviet Union, and France.
The war ended in an allied victory after the US and Soviets dropped a total of four nuclear bombs against Germany who had taken over almost all of Europe.
Germany, which had already been split, prior to the war's conclusion, between the Nazi West and the Pacifist East, joined the anti-communist and pro-communist rings respectively.

WS-110A

Weapon System 110A

The designation of the XG-70 'Susano-O' project in the Alternative 4 program.
The XG-70 was originally in development in the US, before it was requisitioned for Alternative 4. Though the project did continue, it ended up becoming just part of a larger plan involving the expansion of 00 Unit's functionality.



Susano-O Mk. IV

WSO

Weapon Systems Officer

A Surface Pilot who controls the weapon systems in multi-seat type TSFs.
Although multi-seat craft have the benefit of lowering the strain on individual pilots by splitting the responsibilities needed to control a TSF, they have several drawbacks such as requiring a larger cockpit, a larger overall airframe, and the additional use of the human resources of the Surface Pilots themselves.

X

X-29

An experimental TSF produced by the American manufacturer Grunnan. It was created to research the high mobility capabilities of 3rd-generation TSFs.

XFJ Program

A joint program between Japan and the American Boening corporation that commenced in 2000 and sought to improve the Shiranui.

XM3

A next-generation Operating System and computer system for TSFs, conceived by Shirogane Takeru, and developed by Kouzuki Yuuko.
It is a system with a focus on simplifying controls, forming patterns on craft movement control, and has the ability to greatly increase the mobility capabilities of TSFs.
An operational, proof of concept test was conducted by Kouzuki Yuuko, using A-01 and the 207th Flight Cadet Corps. Using that first version, a mass produced test version was developed and installed on the TSFs at Yokohama Base.

Y

Yokohama Hive

A hive that commenced construction in 1998 after the BETA invasion of Honshu, Japan.
The IJF's designation for it is Target 22.
It was an abnormal case, since its monument was at Phase 2, yet its main shaft's diameter and depth were at Phase 4.
It was captured during Operation Lucifer, and Yokohama Base was constructed at the site of the hive.

Youkou Program

A domestic next-generation TSF development program of the Empire of Japan that commenced in 1983.

Yukon Incident

An incident in 2001 where Yukon Base was temporarily occupied by an armed terrorist group.



MUV-LUV ALTERNATIVE CODEX

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Design	Flightlab/FREEWAY
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Publishing office	ENTERBRAIN
Sales agency	KADOKAWA CORPORATION
Printing	Toppan Printing Co. Ltd.
Supervision & Cooperation	âge/ACID Co., Ltd.
Writers	Wei Luxin Hiroki Uchida DDD Tadasu Nanjou Akira Yamazaki Yasutoshi Takamura Norihito Sakaguchi Drillmaster Hiro Akizuki [RUN AND GUN] Osamu Murata [RUN AND GUN] Norihiko Arikawa [STUDIO INGAOUBOU] Takuma Hashimoto PLUS ON PORORISYUNSOU Koki Yoshimune
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Human Tactics and Weapons Map	Akio Unuma Tokiko Yuzawa [Twin Bell]
Wars Illustrations	Tomofumi Ogasawara Hidetaka Tenjin Sangoku Musou Niθ
Wars Map	Akio Unuma

Lunatic Dawn Original Staff

Writers	Koki Yoshimune / Kycow Akira Yamazaki / Dow Hiragane
Illustrations	Sou Miyata Ryo Utsugi Sangoku Musou / Monkeychop Azusa Maxima Masami Obari Susagane

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CODEX Localization Team

Translation and Editing	Peter Sawada 'Klempfner'
Editing and Proofreading	Brain Le
	Gabriel 'Gabgrave' Chew
	Arvin Cua
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